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ABSTRACT

Outlining New York City's Division of School Buildings (DSB) Maintenance Program, this report makes recommendations on funding, management reform, and coordination among the various Board of Education divisions. It includes detailed analysis of the board's expenditures for school maintenance. The report updates the 1978 Educational Priorities Panel study through interviews with top DSB officials and analysis of Board of Education documents. The report points out that many schools are in desperate shape as a result of years of neglect, due to the city's fiscal crisis and the aging of the schools. The recommendations include a proposed $20 million increase in the school maintenance budget for 1985, and a $15 million a year increase for the next 4 years. These increases are linked to management savings in custodial and maintenance costs, which include: improved procedures for setting priorities and for worker allocation at maintenance shops, computerization of paperwork, streamlining of contract procedures and tightening supervision of contractors, and increasing the repair responsibility of custodians. The appendixes include 62 tables of statistical data, excerpts from 2 reports, and a three-page bibliography. (MD)

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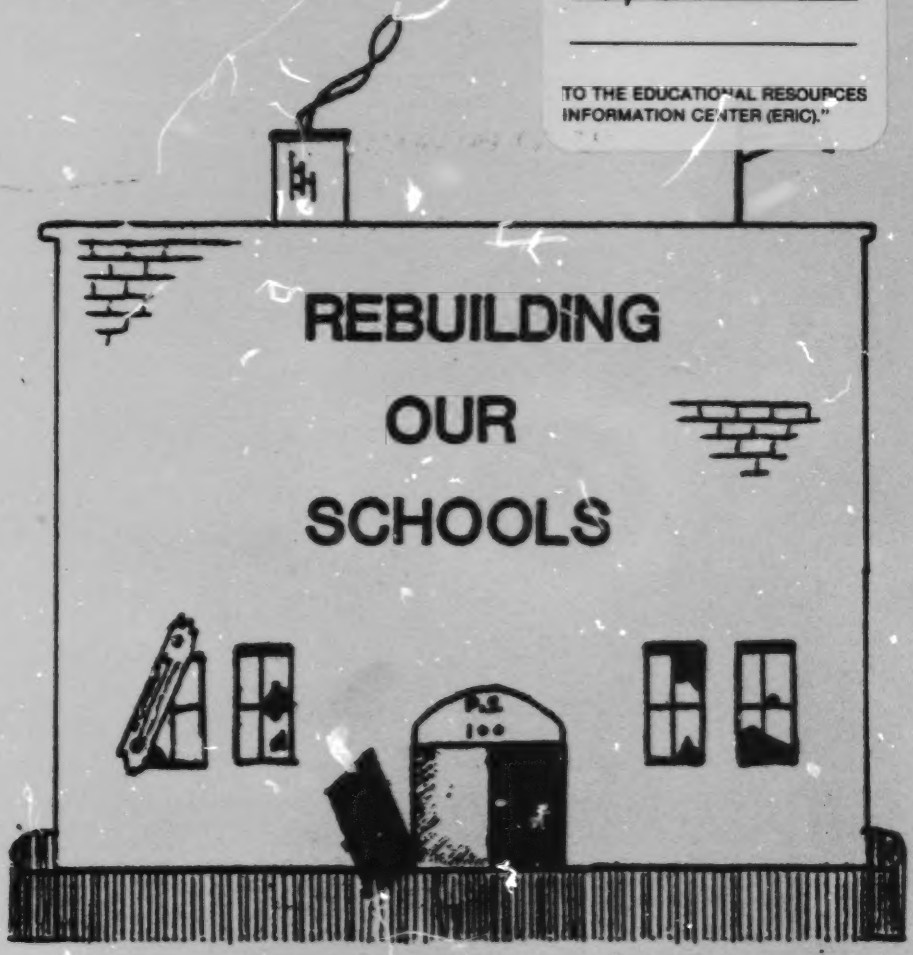

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REBUILDING OUR SCHOOLS

MANAGEMENT
OF THE
NEW YORK CITY
BOARD OF EDUCATION
DIVISION OF SCHOOL BUILDINGS'
REPAIR PROGRAM

May 3, 1984

Principal Author: Allan Tumolillo

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I. THE PROBLEM

Introduction

The city's schools are falling apart. The Board of Education, recognizing this, has initiated an elaborate rehabilitation and modernization program, one that the City of New York appears reluctant to finance entirely. The city has two main objections to the Board's proposal: the demands on the city's capital budget for infrastructure renewal exceed the city's ability to pay, and a strong belief that the Board simply wasted previous funding. In the period FY 1978-1984 the Board of Education spent $1.08 billion in expense budget appropriations for the operation, maintenance and administration of school buildings. This is more than $1 million per school over a six year period, more than half of which was for custodians' salaries. It is fair to ask where $1 billion went in the last six years and where the next $1.5 billion (the next six years' budget) will go. In addition to these enormous operating costs, the Board has proposed a four year capital budget (FY '85-'89) of $1.057 billion, with $657.5 million of this for modernization of school buildings.

The Board's Division of School Buildings (DSB) has consistently maintained that two coincident events created the problem of decaying schools: the city's fiscal crisis and the aging of the schools. According to DSB, capital and expense budget funding dried up precisely at the point when high maintenance and rehabilitation costs should have been incurred because of the aging of schools. Although we agree with this assessment, it is not the only reason why schools are in sad shape.

Beyond funding limitations and the age of schools, there is also a failure of management to seize control of DSB and make it work. Some of the problems are contractual. For example, the custodial contract requires virtually nothing in the way of repairs from the head custodian at a school. Many repairs that could be done by the custodians are prohibited by the contract. So, while the custodians consume 65 percent of the DSB expense budget, the benefits to the school system beyond the cleaning of the buildings are increasingly more difficult to find. Thousands of minor repairs become major repairs and probably won't be attended to by DSB's shrunken maintenance force.

Within the Maintenance Bureau of DSB there are some signs of interest in management control, but they are not far-reaching enough to make the sweeping reforms necessary. The area shops and the central repair shop operate in a haphazard manner. The limited reforms achieved in the Manhattan-Bronx Area Shop have been undercut by staff reductions and shortages of key parts and supplies. The Bureau of Maintenance and the Bureau of Supplies cannot coordinate the purchasing of materials needed for school repairs, resulting in deferral of needed repairs and priority setting according to availability of parts rather than need.

Design flaws and poor contractor performance have also contributed to the decay of many schools. Heating and ventilating systems in some schools

have never worked properly, and thousands of dollars in repairs are spent trying to correct an inherently poor design. Roofs fall apart after five years, due either to design flaws or poor contractor performance.

The Board of Education has a responsibility to provide a physical environment that encourages learning by students and supports staff efforts to teach. Too often classrooms are too hot or too cold because of broken heating systems; rain water pours into many classrooms, destroying floors, walls and furniture, as well as education. Many principals have complained that the Board's inability to make repairs actually encourages vandalism and a lack of respect for education -- students (as well as teachers) in many schools find it difficult to believe that anyone cares about them when the desks they sit at are falling apart, when the windows won't close, and when rain pours in through gaping holes in classroom ceilings.

There are many causes of the decay of school buildings, with the lack of funding and the aging of the structures perhaps the most important. Management weaknesses, design flaws, contractor performance, an undemanding custodians' contract and vandalism have also made their contribution. Increased funding may be the most important steps the city and Board can take to reverse the decline -- but funding increases should not be rewards for management weaknesses. The Board and the city must extract vastly higher levels of productivity and performance out of its custodial force, outside contractors, shop mechanics and managers, even on a gainsharing basis; otherwise, the increased funding could be wasted in much the same fashion as previous funding.

Background

In 1978 the EPP issued a report on the problems within the Division of School Buildings. The effects of the failure of managerial control had already been felt in the schools for a long time and the fiscal crisis was just beginning to compound the damage. Many of the problems we identified then -- the custodial contract, design flaws, poor construction supervision, planning, maintenance -- have now begun to be addressed by DSB; some still remain. The long-term effects, however, of years of neglect are still being felt and DSB is now trying to make up for at least a decade of decline.

To update that study, our researcher interviewed top DSB officials and analyzed numerous Board of Education documents, including: budget planning and management reports and computer printouts on contracts, building profiles, etc.; city reports and reports from other city agencies; analyses by private consultants; and previous EPP reports.

For the school-level perspective, we randomly selected six schools to visit for on-site inspections and to interview the principals and custodians. Our research team visited an academic high school on the Upper West Side, a vocational high school in the South Bronx, intermediate schools in Bayside, Queens and East New York, and elementary schools on the Lower East Side and in the industrial area abutting Park Slope in Brooklyn. The schools ranged in age from 80 years old to about

fifteen years old. A couple were in sad shape; others were fairly good considering their age. All schools had problems though, and we have highlighted just a few here.

At the vocational school in the South Bronx, a classic structure built during the WPA area of the 1930's, our researchers found the most visible signs of a maintenance system and custodial system unable to cope. A tour of the school showed falling plaster and paint throughout the structure; broken and boarded up windows; fire doors that would not close; a warped gym floor due to leaks in the roof; water leaks throughout the building; virtually no window shades; huge holes in classroom ceilings (made by Maintenance personnel looking for leaks, some as long as three years ago and never repaired); dilapidated furniture; graffiti; missing floor tiles -- the list can go on.

The principal in that school knows that the high school is one of the very few constants in the lives of the students. All around the school is a vast sea of destruction and it is a real battle to keep it from engulfing the school; in this particular case DSB is not winning the battle. The principal fights hard to encourage respect for education and property, but this message loses its force when the education establishment does not seem to care. How else to explain to a sixteen-year-old the holes in the ceiling, put there three years ago by DSB personnel?

At another school, one we examined in 1978, in Brooklyn, DSB has begun the process of modernizing the eighty year old structure. This was a school, once earmarked for replacement, that had been starved for funding in the 1970's. Now that the decision has been made to keep the school, over $2 million will be spent on modernization and rehabilitation. The sad thing about this school is that it took almost six years from the time of our last report for DSB to initiate the necessary modernizations.

At the academic high school on the Upper West Side, evidence of design flaws was apparent. The most notable was the heating and ventilating system which has never worked properly in the eighteen years since the school was built. The thermostats simply do not work, and DSB has repaired them countless times. The final judgment, as told by the principal, is that DSB engineers have concluded that the entire heating and ventilating system was designed improperly. The results? Wasted repair dollars; classrooms so hot that they must be closed off; and an environment where education is stifled because the temperatures are unbearable.

At the school on the Lower East Side, our researchers found a building almost eighty years old in relatively good repair, although in need of some modernization. Here the custodian makes many small repairs quickly. The security system, however, had allowed eleven successive break-ins before it worked.

In the intermediate school in East New York, termite infestation was so bad that the auditorium stage was unusable. Literally thousands of termites covered the stage floor, the hallways and sections of the

gymnasium. The locker rooms have never had heat. The under-ground water table had undermined parts of the gym floor, resulting in serious warping. Leaks in kitchen fixtures and in the roof have not been repaired. A steam pipe leak, not repaired because there was no piping available, has resulted in the rotting of the floor in one classroom, paint peeling and rotted furniture. The room, a science lab, is now closed off.

The intermediate school in Bayside, Queens, is one of those schools where everything seems to work. The school is in good repair and does not have any major problems.

We selected these schools at random. We found extensive evidence of needed repairs, custodians, for the most part, who did minimal repair work, if any (though the schools, in general, were clean), and despair and frustration in the principals. DSB recognizes the extent of the problem and, to its credit, is trying to reverse the decay in the schools. But it is evident that sweeping managerial reform and new labor agreements as well as increased funding are needed.

Although DSB has begun to make changes along the lines suggested in the 1978 EPP study, many of the problems identified then still remain. Since 1978 some city agencies have significantly improved management practices and productivity, notably the Sanitation Department's institution of two-man trucks and its improved efficiency in the Equipment Bureau. This has not occurred yet at DSB despite the efforts of some outstanding managers. The Board of Education must seek cooperation with labor in the next round of negotiations to achieve the real benefits that other agencies have won. Only with the help of the unions and with a management staff willing to be innovative can the Division of School Buildings overcome the massive decay that is attacking our schools.

In this report we have included our findings on the Division of School Buildings' maintenance program, our recommendations on funding, management reform and coordination between the various Board of Education divisions, and a detailed analysis of the Board's expenditures for maintenance.

The recommendations include a proposed $20 million increase in the school maintenance budget for Fiscal Year 1985 and a $15 million a year increase for each of the following four years, to be linked to management savings in custodial and maintenance costs. These savings, as well as improved service, can be achieved though: improved priority-setting and manpower allocation at the area maintenance shops; computerization of paper work; streamlining of contracting procedures and tightened supervision of contractors; and increasing the repair responsibilities of custodians through a "gain sharing" system. A complete list of the detailed recommendations follows, with the supporting findings and explanations in Section III.

II. SUMMARY OF RECOMMENDATIONS

In this report we have documented a number of managerial and operational changes we believe necessary for the improved maintenance of the city's schools. We have also included a funding proposal for a five-year period, FY 1985-1989, that should help bring the schools back to top condition.

The recommendations are:

BUREAU OF MAINTENANCE

(1) The Bureau of Maintenance's Resource Planning Team to set priorities and control work flow should be extended to the Brooklyn-Staten Island area office, the Queens area office and the Central Repair Shop.

(2) The Resource Planning Team program should be expanded into a fullscale manpower allocation system complete with realistic group performance standards.

(3) Each area shop and the central repair shop should be run on a "profit-center" basis to see if, indeed, they perform repairs more cheaply than the private sector.

(4) The Bureau of Maintenance should adopt the labor-management cooperation model of the Sanitation Department's Bureau of Motor Equipment.

(5) The Division of School Buildings should expand the shop mechanic force by 10 percent over the budgeted headcount of 432.

(6) DSB should expand the experimental training program that employs mothers on AFDC as painters, to include out-of-school youth.

(7) DSB should become fully computerized to reduce the volume of paperwork and speed the process of contracting out for repairs.

(8) The Bureau of Maintenance should contract out for mechanics' supplies since the Board's Bureau of Supplies has not been able to fulfill its requirements contracts on a timely basis.

(9) DSB should initiate an experimental program to allow districts and high schools to issue small contracts, thus bypassing DSB bureaucracy. The total allocation for this program should not exceed $2 million.

(10) Since over 50 percent of the present mechanics force will retire by 1989, DSB should broad-band a number of the craft titles.

(11) The Board of Education should publicize career opportunities in school maintenance to students and expand vocational courses to prepare students for mechanics jobs to fill DSB's personnel needs.

(12) The Board of Education should seek state legislation to allow managers discretion in awarding contracts up to $10,000 without Board approval. As soon as practical, it should move toward raising this level to $25,000.

BUREAU OF PLANT OPERATIONS

(13) The head custodian should no longer be considered a supervisor but, rather, a working team leader.

(14) The custodians' contract provisions regarding minor repairs should be rewritten to spell out a category of repairs that all custodians can and should do.

(15) The Board should enter into a "gain-sharing" arrangement with the custodians wherein they share in the savings gained from making minor repair themselves. Over the next five fiscal years, the Board should achieve a net savings of at least $25 million in maintenance costs.

(16) There should be increased coordination and cooperation between the principal and the custodian in each school. They should meet periodically to evaluate the condition of the school and set maintenance and repair priorities. The principal should have a greater role in evaluating the custodian's performance.

(17) The Division of School Buildings should end the practice of transferring custodians who are about to retire to the largest high schools in order to boost their pensions. As a rule, custodians should not be transferred during the last three years of their tenure.

BUREAU OF CONSTRUCTION AND FACILITIES PLANNING

(18) The Bureau of Construction and the Office of Facilities Planning should review the causes of major design flaws in new construction, with the goal of reducing future maintenance costs.

(19) The Division of School Building's main divisions should jointly determine the anticipated daily operational and maintenance requirements of each new building system. The Division should adopt procedures to allow this preventive maintenance to take place.

(20) The Board and the City should press the Governor and the Legislature to repeal the Wicks Law requiring four separate construction contracts on major projects.

(21) The Division of School Buildings should develop the capacity to prepare detailed cost-benefit analyses of new construction versus modernization of old structures, including discounted cash flow analyses and life-cycle maintenance and operating costs.

(22) Methods of calculating school utilization rates should be improved with principals' participation to better reflect the actual uses of school space.

(23) The Board should move to close high-cost, underutilized schools, following EPP's earlier recommendations as outlined in "When a School is Closed..." to avoid community disruption and find alternative uses for closed school buildings.

(24) Before major capital improvements are made in an older school, the school's potential for closing should be assessed.

OUTSIDE CONTRACTORS

(25) The Bureau of Construction should exert tighter controls on outside contractors with the goal of improving workmanship, thus reducing future maintenance costs.

(26) Both the principal and the custodian should approve maintenance contract work before the final payment is made to an outside contractor.

(27) The Division of School Buildings should speed up final payments for outside contracting.

(28) The Division of School Buildings should be more aggressive in removing firms that do not perform satisfactorily from its qualified bidders list.

BUDGET PROPOSALS

(29) The city should add $20 million in FY 1985, and $15 million a year for each of the next four fiscal years, to the Division of School Buildings' base budget for school maintenance.

(30) The Division of School Buildings should, in addition to $25 million in custodial savings (see #15 above), achieve $7.5 million in efficiencies in school maintenance over the next five years.

III. FINDINGS AND RECOMMENDATIONS

Our primary recommendation is for the City of New York and the Board of Education to increase both expense and capital budget funding to the Division of School Buildings for the repair, rehabilitation and modernization of school buildings. Funding increases, however, should be predicated upon continued management reforms within the Board of Education. Before we elaborate on the budget implicattions, we will discuss our findings and recommendations in four areas: the Bureau of Maintenance, the Bureau of Plant Operations, the Bureau of Construction and Office of Facilities Planning, and Outside Contractors. A commitment from the Board to carry out these recommendations will help insure that the city's schools are brought back to excellent physical condition.

BUREAU OF MAINTENANCE

The Bureau of Maintenance of the Division of School Buildings is responsible for the repair and maintenance of all school buildings, athletic fields, shops and administrative offices under the jurisdiction of the Board of Education. The Bureau carries out repairs and limited rehabilitations beyond the abilities of the school custodians. Although the Bureau does carry out modernizations of school buildings (i.e. full-scale renovation or replacement of major elements of a school building such as electrical system, plumbing, heating and ventilating system, roofs, etc.), DSB's Bureau of Construction has more responsibility in this area. Maintenance's responsibilities fall into the vast and not-well-defined area between very small repairs and full-scale modernizations.

The Bureau operates three area shops (Manhattan-Bronx, Brooklyn-Staten Island, Queens) and a central repair shop. (The Queens area shop and the central repair shop will merge this year.) The Bureau maintains a staff of skilled mechanics in four trades in the area shops - electricians, plumbers, carpenters and steamfitters. These four trades represent the most common types of repairs in the schools. In the central repair shop there are 24 trades ranging from auto mechanic to window shade repairer. (See Table 44 for a breakdown of staff by craft). The Bureau employs 432 mechanics in the area shops and the central repair shop.

The Bureau, in addition to using shop mechanics for repair work, issues hundreds of contracts a year for repair work. In FY 1983, for example, the Bureau registered 1,306 maintenance contracts for a total of $12.5 million. (See Tables 1-8 on the breakdown of contracts by district and borough, and by category.) The Bureau enters into maintenance contracts for work that: (a) is too large in scope for the shop mechanics; (b) is an emergency; (c) is specialty work or where the Bureau is short of staff; and (d) is in the nature of a service contract on specific equipment such as security systems.

In FY 1983 the Board spent $11.8 million on shop mechanics compared to the $12.5 million in maintenance contracts. In the FY 1985 budget proposal the Board is seeking only modest increases in the number of shop mechanics but $19.5 million for contract work. (See Tables 37-39 and 54.)

The repair process begins with a custodian filling out and filing with the appropriate area office a plant operation form requesting repairs or "PO-18". The PO-18 contains information on the nature of the repair, the trade involved and whether it is an emergency or not. Once the PO-18 arrives at the area office, four courses of action are possible: (a) an area shop mechanic eventually makes the repairs; (b) a central repair shop mechanic makes the repair; (c) the repair requires an outside contractor, hence the area office or the Bureau of Maintenance prepares specifications in anticipation of a contract; or (d) the PO-13 goes to the Bureau's own version of limbo. Several thousand PO-18's a year manage to appear on the Bureau's "PO-18 Backlog". Between July and February of FY 1984 the backlog grew by 1,475 PO-18's. (See Table 60.) Even if the area office refers the PO-18 to a specification writing unit, there is no guarantee that the Bureau will actually issue a contract for the repair. As of March, 1984 the Bureau had a $26.3 million backlog in work where specifications had been written but no contracts had been issued. This backlog is more than double the value of the FY 1983 contract work and numbers over 2,500 contracts. The backlog appears to be growing at a rate of $5-6 million a year and will grow faster as the schools decay if additional funding is not forthcoming. (See Tables 55-61.)

There seems to be no way of setting priorities among the PO-18's, other than emergencies. Whether the work gets done has a great deal to do with personal relationships, the availability of supplies and the difficulty of the task.

In 1982, in response to a clearly intolerable situation, the Division of School Buildings, under then-Executive Director Anthony Smith, initiated measures to improve productivity and the flow of work within the area shops. DSB contracted with Arthur Young & Co., a management consulting firm, for a review of the operation of the area shops. Arthur Young made a number of recommendations (see Appendix) for the Manhattan-Bronx area shop and, to DSB's credit, it adopted most of them.

The most important recommendation in the Arthur Young report was the creation of Resource Planning Teams (RPT's) in the shops. Under the old system PO-18's were simply routed to the foremen of the appropriate trades and each foreman then determined which repairs got done. Since no central group tracked the PO-18's or set priorities for repair and since the foremen were quite powerful, the system eventually broke down. Foremen set their own pace, did easy repairs regardless of need, and were generally unaccountable for their performance. The Resource Planning Team runs counter to this system.

A Resource Planning Team is functioning in the Manhattan-Bronx area shop, and the results, while not spectacular, are encouraging. All PO-18's in this shop go to the RPT first, not the foremen. The RPT determines the priority of each job, which trade does the job, or whether the work goes to either central repair or to a specifications writing unit. The RPT members (all senior mechanics, foremen or supervisors) control the flow of work and makes rough estimates of how long each job should take. Foremen do not receive a new batch of PO-18's until they have completed previous assignments.

This has brought some accountability to that office and work is improving. The Bureau of Maintenance management is enthusiastic with the results thus far and has requested funds to extend the RPT model to the other area shops and the central repair shop.

We support the extension of the RPT concept and urge the Bureau of Maintenance to move as quickly as possible in introducing this program into the remaining shops.

The Bureau of Maintenance, however, has experienced a number of problems in the structure and operation of the RPT which have reduced the effectiveness of the program. The structural problems include inefficient manpower allocation, undemanding performance standards, and the lack of aggressive labor management cooperation. The operational problems are, of course, inadequate funding for additional mechanics and cumbersome procedures for the purchasing of materials.

Structural Issues. The three major structural improvements to the RPT that we recommend are: 1) the elaboration of the program to a full manpower allocation system; 2) establishing the Bureau of Maintenance as a "profit center" within DSB; 3) and the institution of labor-management teams along the lines of those initiated by the New York City Sanitation Department's Bureau of Motor Equipment (BME).

An ideal manpower allocation system incorporates a number of features:

1. A priority list of each major element in the system that must be maintained and an estimate of the quantity, e.g. 75,000 windows; 1,000,000 square feet of floors; 3,000 boilers, etc.

2. A set of performance standards for each craft's involvement with each element that is on the list, e.g. it takes 10 man-powers of steamfitter's time to fix a pump; or two hours of a glazier's time to replace a window pane, etc.

3. A manpower budget, by craft, against which to charge repair time, e.g. three glaziers represent 4800 man hours of work for one year

4. A resource planning or allocation team, similar to that in operation in the Manhattan-Bronx area office.

A number of these manpower allocation systems are in place, including one in the New York City Transit Authority's Structures and Maintenance of Way Division. The manpower budgets and the priority listings are easily adapted to a computer format, and on-line adjustments to the budgets, priorities and resource allocation are possible.

The key to the successful use of the manpower allocation system, once the RPT's are in place, is a realistic set of performance standards. The usual performance standard is set too low, especially in government

programs; thus everyone meets targets (and little gets done!) Management must set performance standards in such a way as to increase productivity. We recommend that performance standards be geared towards group output rather than individual output to emphasize team work. The group approach has worked well in other settings in government and we recommend it here.

The second improvement is the use of a "profit center" approach which ultimately enables a comparison of the cost of doing an in-house repair versus contracting out. Each area shop should operate as an "independent contractor", having wages, materials and equipment costs, fringe benefits, overhead, and profit. The cost of performing any kind of repair, then, will be a true, fully-allocated cost and can be compared to the Bureau of Maintenance's contract cost for similar repairs. This public versus contract cost analysis was done by Sanitation's Bureau of Motor Equipment. Over a period of only two or three years the Bureau has become a highly "profitable" operation, performing work below the cost of the private sector, and doing it well. Once the workers in BME saw that others could do the job better and cheaper, they improved productivity dramatically and quickly became "better and cheaper." The New York State Financial Control Board has reviewed BME's operation and has concluded that other agencies should view themselves as "profit centers".

In addition to providing a data base for such calculations as the true cost of doing a repair, the manpower allocation system and the "profit center" approach can tell managers:

1. what each area shop and the central repair shop can accomplish with present levels of staffing and productivity;

2. what could be accomplished in each shop under various scenarios of increased staffing or productivity;

3. what resources are required to bring the school system back to a good state of repair and how long it would take.

These questions are vital for management control of the maintenance program. The Bureau of Maintenance, with the cooperation of DSB's Office of Administration, has started in the right direction; but clearly more has to be done.

The Sanitation Department's Bureau of Motor Equipment has become a model for labor-management cooperation. Productivity has soared; millions of dollars have been saved; overtime has been reduced -- and most of this can be attributed to enlightened management and craft union cooperation.

Briefly, the Deputy Commissioner in charge of BME asked each union in his shop to appoint their best person to a panel, a Labor Committee, which would report directly to him. The unions responded; the panel became a reality. The members work full time as troubleshooters, solving problems that management team after management team could not solve. The results

have been dramatic -- down time of collection trucks reduced from 46.7% to 14.4%; actual cash savings of $16.5 million in two years; a lower operating budget.

The key point is that all of the gains made at BME have been made with the full and complete cooperation of the unions, many of which are represented in the Bureau of Maintenance's area and central repair shops. BME has shown the way to doing more with less in city government and there is no reason why this program cannot go forward at the Bureau of Maintenance.

In summary, our structural recommendations for the Resource Planning Team program are:

1. Extend the program to the other area shops and the central repair shop.

2. Expand the program to become a full-scale manpower allocation system complete with realistic group performance standards.

3. Run each area shop and the central repair shop on a "profit-center" basis to see if, indeed, they perform repairs cheaper than the private sector.

4. Adopt Sanitation's Bureau of Motor Equipment labor-management cooperation model at the Bureau of Maintenance.

Operational Reforms. There are several steps that DSB should take to strengthen the shop mechanic force and to ease the massive flow of paper that is endemic to the Board of Education.

The most critical need is to expand the number of shop mechanics. The Division of School Buildings faces a crisis in the schools, and, because it is understaffed in the skilled trades, it must resort to contract work. Our estimate is that the results of the structural reforms outlined above will not be felt for at least two years. Compounding this problem is the retirement schedule of the shop mechanics. Within two years 17.4% of all the mechanics will be eligible for retirement; within six years 52.3% will be eligible (see Table 44.) By 1989, if there are no replacements, the Board will lose all of its boilermakers, bricklayers, clock and doorcheck repairers, elevator mechanics, machine shop assistants, mason helpers, sign painters, elevator mechanic supervisors, radio repair supervisors, thermostat repairers, welders and window shade repairers.

All the school principals and custodians interviewed, without exception, believed that the skills and quality of work of the Maintenance employees were better than that of outside contractors. If the Board of Education loses these skilled employees, it has no alternative but to rely on outside contractors.

Therefore, we recommend:

1. DSB should move to expand the shop mechanic force by 10 percent over the budgeted headcount of 432.

2. The Board of Education, working through the Personnel Office and the collective bargaining process, should broadband those mechanic titles that are compatible. Since many of the repairs are small, a qualified mechanic should be able to perform a wider variety of them. This is a repeat of a recommendation first made by the EPP in 1978.

3. DSB should expand the experimental training program sponsored by the painters union and run by Ventures in Community Improvement. In that program the union trained about a dozen women, all on AFDC, as painters. The Division of School Buildings paid union-scale wages for the painting of several schools. By the end of the program, eight or nine women graduated to journeyman status in the union. This program is cheaper than outside contractor work and produced work of the highest quality. It should be pursued by DSB in as many crafts as possible. We also recommend that this program be extended to include unemployed youths. The threat of suit by contractors (who feel they are denied the right to bid for this work) should not deter DSB. If necessary, the program should be changed to make the trainees Bureau of Maintenance employees, thus avoiding the wrath of outside contractors. In-school vocational education programs should also utilize students to do repairs as part of a supervised work experience program.

4. The Board of Education should publicize career opportunities in school maintenance and expand vocational courses to prepare students for mechanics' jobs to meet DSB's future personnel needs.

The entire contracting and spec-writing process is too paper-intensive. The Division has prepared flow charts for the process of issuing expense and capital contracts under and over $5,000. It is apparent that many of the steps could either be done by a machine or would be less time-consuming if the information were on-line. A similar problem faced the investment banking community in the 1970's. Their solution was to invest heavily in word processors, small computers and terminals hooked in to larger mainframes. The guiding principle was: "if the individual reviewing a piece of paper exercises no <u>discretion</u> over it, then the action can be done by computer." What this means is that many "yes-no" decisions can be done by the computer, and that all those who really must know what each piece of paper says can read them on computer terminals -- all at the same time. Although computers are expensive, the savings through attrition as excess "paper-pushers" move on to other challenges can more than pay for the installation cost. A typical clerical position today costs the Board about $15,000 in wages plus 35 percent, or $5,250, in fringes, for a total of $20,250. A savings of only <u>ten</u> of the current clerical positions yields $202,500 a year - more than sufficient to write off the costs of a major computer system. Throughout the Division the use of minicomputers and word processors could speed up work, reduce paper, reduce staff and make the system more efficient.

Therefore, we recommend that:

5. DSB move aggressively with the full-scale computerization of all aspects of the Bureau of Maintenance paper work.

The top management at the Bureau of Maintenance, as well as central DSB, believe that much of the dollar savings the Resource Planning Team was to generate were lost due to insufficient mechanics' supplies. The Board's Bureau of Supplies, according to DSB, did not fulfill its requirements contracts, some $3 million worth of materials, on time. Regardless of where this process broke down, and/or who is to blame, it is inefficient. The separation of the purchasing of mechanics' supplies from those who use them, i.e. DSB, does not lead to savings. No one else within the Board uses mechanics' materials; hence, there is no "economy of scale" purchasing argument for keeping this function at BOS. Managerial responsibility should include purchasing. If the Board wants to hold managers accountable for their performance it should remove the obstacles to their performance and allow them to control the resources necessary to do the job.

Therefore, we recommend that:

5. The Bureau of Maintenance contract out for its own mechanics' supplies, about $3 million a year at the current level of activity. The Bureau will have to demonstrate after one year a savings in mechanics' time (due to having supplies available) and a savings in purchasing.

The final operational recommendation involves limitations on contracts set by the State of New York. Under current education law, a contract over $5,000 must not only be let for bid, it must also be approved by the Board of Education itself. The time between the award date for contracts over $5,000 (i.e. the date that the lowest qualified bidder is determined) and the notice to begin work date (i.e. the date that the Board has approved the contract and returned it, after registration, to DSB) averages 8.26 weeks. Rarely, if ever, does anyone do anything to alter the contract. Bureau of Maintenance officials could recall only one contract in the past ten years or so that was not approved by the Central Board.

In FY 1983, 446 of the 1,306 maintenance contracts were over $5,000; a delay of 8.26 weeks for each contract yields an equivalent of 70.75 contract-years wasted on paper-shuffling. DSB could improve its cash flow and make repairs two months faster on these contracts if this perfunctory requirement were removed. For mayoral agencies, commissioners can issue contracts of up to $10,000 before Board of Estimate approval is needed. This $10,000 limitation for Mayoral agencies is at least 12 years old and, in 1984 dollars, does not buy a great deal in goods or services (see Tables 27-29, 43.)

Therefore, we recommend that:

7. The Board of Education seek state legislation immediately to allow managers discretion in awarding contracts of up to $10,000 (the same as Mayoral agencies.)

8. The Board move as soon as possible to allow managers discretion in awarding contracts up to $25,000. (This recommendation will probably require a simultaneous change of the City Charter to allow mayoral agencies the same discretion.)

We believe that significant savings over time will result from these changes and repairs can be made on a more timely basis.

Finally, the Bureau of Maintenance issues many contracts under $5,000, some 860 in FY 1983 (see Table 27). Many of these are "various" contracts, ones where similar work will be done in several schools within a borough or even in several boroughs. The work in an individual school is quite small in many cases, a repair that could be done either by the custodian or the shop mechanics (if there were enough of them.) The time it takes DSB to process a small contract, even those under $5,000, is measured in weeks, not days (except for true emergencies).

We recommend that the Board institute a new program in each of the districts and the high schools that allows district superintendents and high school principals to issue small contracts for quick repairs or materials (such as wood, ballasts, pipes, etc.). The program could be tried in several high schools and several districts and DSB can use any set of controls it wishes to guarantee the integrity of the funds.

In Tables 41 and 42 a sample program is displayed. For the districts, a total allocation of $1.25 million is used. The formula for allocation is based on the relative age of each district's schools (see Tables 18-26 on age distribution of schools), with an "age weight" assigned to each district. Using this formula the $1.25 million allocation is distributed among the 32 districts, with a low of $17,000 and a high of $69,000. (Other formulas can be used; the "age weight" formula, however, has the advantage of identifying the districts with the oldest schools, the ones, theoretically, that need the most maintenance.) For the high schools, a similar format on a borough basis yielded a low of $37,500 for Staten Island and a high of $172,300 for Brooklyn, with the total allocation equal to $500,000.

Therefore, we recommend that:

9. The Division of School Buildings initiate a program for the districts and the high schools to issue small contracts for repairs and materials. The total allocation should not exceed $2 million and the formula for all allocations should be based on relative need for maintenance.

BUREAU OF PLANT OPERATIONS

The Bureau of Plant Operations within DSB is the first-line defense against the deterioration of the city's schools. The custodians, in FY 1984, will consume $130 million, more than $130,000 per school. Over the years, audit after audit has documented abuses in the custodians' contract, in the interpretation of the contract, and outright illegalities. For years the Board of Education has given away millions to the custodians in exchange for less work, not more.

floors are mopped and waxed only three times a year (Christmas, Easter, Summer). The smallest of repairs, such as changing a ballast in an overhead light, take only a few minutes to do (and less than that to learn), yet many custodians fill out PO-18's. On-site inspections of several schools by our researchers found head custodians reading the papers, fixing their own telephones and, generally, unresponsive to the principals.

The practice of rotating custodians through to the larger high schools just before retirement (pensions are based on last year's salary and the salary of a custodian is keyed to the square footage of the school) results in some schools having new custodians every couple of years, such as has happened on the Upper West Side. This means that by the time the custodian "learns" about his school, he retires. Then the process starts over again.

Some custodians do take an interest in their schools and do far more than the contract calls for -- and their schools show it. One school, over 80 years old, in a poor neighborhood, was cleaner and in better repair than a much newer school in a similar neighborhood. The difference, at least in large part, is the attitude of the custodian.

In FY 1984 the Bureau of Maintenance will spend $36.9 million on repairs, a little more than $38,000 a school, compared to the $130 million, or more than $130,000 a school spent on custodians. In the next five years, FY 1985-1989, the Board will spend almost $700 million on custodial care.

We recommend the following changes in the way custodians do business:

(1) The head custodian should no longer be considered a supervisor but, rather, a working team leader.

(2) The contract provisions regarding minor repairs should be rewritten to spell out a category of repairs that all custodians should do, regardless of problems with other craft unions. For example, changing ballasts, fixing switches, faucets, roof patching, and so on. Many of these are repairs the average homeowner does as a routine matter.

(3) The Board should make a "gain-sharing" arrangement with the custodians, with the exact percentages to be negotiated. The "gain-sharing" would work something like this: for every $1,000 in repairs the custodian performs rather than writing up a PO-18, the Board can rebate a percentage, say 20% for the first $1,000, 22.5% for the second $1,000, up to 30% for the fifth $1,000. A custodian who saves the Board $5,000 in repair costs under this scheme would receive $1,250 and the Board would realize a net savings of $3,750. This should be done in lieu of salary increases. The custodian should document the repairs, and the principal should verify their completion.

Using this approach, the Board should seek, at a minimum, $25 million net savings out of the $700 million expenditures in FY 1985-1989. We believe the number could be far higher, but we have opted for a conservative estimate. The Board should look to the Sanitation Department as an example. There the collective bargaining process led to the two-man truck and to better maintenance of vehicles. We see no reason why similar achievements could not be reached with the custodians union.

(4) The Division of School Buildings should end the practice of transferring custodians who are about to retire to the largest high schools in order to boost their pensions. As a rule, custodians should not be transferred during the last three years of their tenure.

In almost every school the custodian is a power unto himself. He considers himself a small contractor/supervisor, yet he has full union protection. Principals in the school find it frustrating that custodians do not report to them and they have little say in determining what work should be done. Since principals do not evaluate the custodian's performance directly, there is little incentive for cooperation. Principals do submit a rating form -- Satisfactory/Unsatisfactory -- to the custodians' borough supervisors, who make the final evaluation. Custodial supervisors, graduates from the union ranks, rarely evaluate custodians in any real sense.

Therefore we recommend that:

(5) There should be increased coordination and cooperation between the principal and the custodian in each school. They should meet periodically to evaluate the condition of the school and set maintenance and repair priorities. The principal should have a greater role in evaluating the custodian's performance.

BUREAU OF CONSTRUCTION AND OFFICE OF FACILITIES PLANNING

The Bureau of Construction of the Division of School Buildings is responsible for the modernization program, in large part, as well as the new construction program of the Board. "Modernization" is a term that embraces both "rehabilitation" and "replacement." Old boilers, roofs and windows may be replaced, but the plumbing and wiring may only be repaired during a modernization.

Our concerns about the Bureau of Construction and the Office of Facilities Planning focus on two areas: design flaws and the new construction program.

In a number of school buildings new roofs have developed major leaks within five years of installation. At a West Side high school the heating and ventilating system has never worked properly -- for eighteen years. Some classrooms are close to 100° and others freeze. Security systems, complete with cameras, monitors and alarms, often are defective.

One elementary school on the Lower East Side had eleven successive break-ins with the new security system. These flaws were discovered in cursory inspections of a handful of schools selected at random; it is likely that design flaws (or shoddy construction work) are far more widespread in the system. In 1978 we uncovered a number of systematic problems within the Bureau of Construction and DSB in general which resulted from major planning and design problems. The results of those problems are being felt now in the schools - and in our small sample of randomly selected schools, as already described.

The result of poor design work is a higher maintenance budget -- roofs must be patched and replaced much earlier than their normal life-span; vandalism is unrestrained in schools where alarm systems do not work; the thermostats and heating systems are constantly under modification in that West Side high school. Not only is the initial capital expense largely wasted (as well as the interest the city pays on it), maintenance funds, which could be used elsewhere, are spent on flawed systems. In some cases, especially with leaks and vandalism, additional costs accrue - painting, plastering, replacement of vandalized equipment, etc.

Although some of these problems may be due to poor workmanship by outside contractors, the supervision of these contractors on capital projects is the Bureau of Construction's responsibility.

We recommend, therefore, that:

(1) The Bureau of Construction and the Office of Facilities Planning tighten up the process of reviewing the major design flaws in new buildings by incorporating the Bureau of Maintenance into the process. Maintenance's experience in repairing these flaws will help in costing out new systems.

(2) The Bureau of Construction should exert tighter supervision on outside contractors to improve the quality of workmanship.

(3) The Bureau of Construction, the Office of Facilities Planning, the Office of Plant Operations and the Bureau of Maintenance should work out in advance of construction the anticipated maintenance requirements of each system within a building. The custodian's contract should be flexible enough to allow higher daily maintenance of new systems; the Bureau of Maintenance should know what repair funds it should anticipate for each new system. The Bureau of Construction and the Office of Facilities Planning should have the responsibility for initiating and preparing these maintenance schedules.

Our second concern is the construction program itself. The Division of School Buildings has proposed a new capital construction

program of $400 million (see Tables 48-53.) The City Planning Commission has opposed some elements of this program, based on low utilization of schools, population projections, and neighborhood changes. There is no doubt that some of the older schools can no longer function, though many can be renovated for continued use. One school in Brooklyn, now over 80 years old, was once slated for replacement, but is now undergoing modernization.

In deciding which schools to replace, the Division of School Buildings should consider an additional factor beyond population projections and traditional educational facilities planning. Life-cycle cost planning is a useful tool in capital budget decisions. The process requires careful estimation of the true maintenance costs (both daily operations, such as fuel and custodial costs, and repair costs) for both the old and new structures, the real lifetime of the new structure, the probable replacement cycle of each system (windows, boilers, etc.) in the old and new structures, and a reasonable estimate of inflation in the construction industry.

The process compares the cost of operating and maintaining the old structure, including replacement of building systems, with the cost of constructing, operating and maintaining a new structure, both over the same number of years. Future cash outlays in the expense budget are discounted to the present and a "capitalized value" can be assigned to the discounted cash flows. In some analyses, the high operating and maintenance costs, complete with modernization costs, will exceed, on a discounted cash flow basis, the construction cost and lower operating and maintenance cost of a new structure. In those instances, if population trends warrant a new building, the Board should proceed with construction. If the new building's costs, however, on a discounted basis, exceed the costs of keeping the old structure, then the old structure should undergo modernization.

This is a process that capital budget planners in the private sector use routinely. Although the Division of School Buildings does not generate all of the required data for such an analysis, it should move in that direction as quickly as possible. Therefore, we recommend that:

> (4) The Division of School Buildings develop the capacity to prepare detailed analyses of new construction projects, including discounted cash-flow analysis, life-cycle maintenance and operating costs, and projected modernization costs.

OUTSIDE CONTRACTORS

School principals and custodians interviewed unanimously agree that the Board's shop mechanics are far superior to the outside contractors. The school principals argued that outside contractors gave low priority to Board of Education work, especially since many of the jobs were relatively minor and payment is slow. In practice, this means that jobs are often left unfinished if the contractor has

another, larger project to work on. We saw some evidence of this in one of the schools where contractors left a security system incomplete. In another school, boiler work was not completed on time. In yet another, the paint job was interrupted for several weeks while the contractor had another job. In virtually every instance the principal or the custodian was not able to influence the contractor to finish the job. Principals speculated that the Board is a slow payer and contractors do not feel obliged to cooperate. DSB's own internal study shows that it takes an average of almost seven weeks for the substantial completion payment to be made. The City of New York's mayoral agencies have a good record of payment within 30 days.

Principals and custodians also speculated that the Board's shop mechanics were simply better, had better skills, and cared more about their work. Although this is difficult to quantify, if it is true, it is an argument for expanding the shop forces instead of contracting out. The Board, though, can require both the custodian and the principal to sign off on the performance of outside contractors; payments can be held until everyone is satisfied that the work has been completed to specification.

The Division of School Buildings does keep a list of qualified bidders for maintenance work. The Division should be more aggressive in blackballing firms for failure to complete projects on a timely basis. If the Division does receive additional capital and expense funds, and can accelerate its payment schedules, it will be in a strong position to deny contractors the right to participate in the expanded work.

We recommend, therefore, that:

(1) Both the principal and the custodian sign off on the completion of a maintenance contract before final payment is made.

(2) The Division of School Buildings should strive to improve the speed with which it makes payments to contractors.

(3) The Division of School Buildings should be more aggressive in removing firms from its qualified bidders list.

BUDGET FOR REBUILDING OUR SCHOOLS

The Division of School Buildings has demonstrated a clear need for additional funds, both expense and capital. For example, over 300 roofs must be replaced due to extensive leaks. Windows in over 350 schools are beyond repair. Many schools have not been painted in over ten years. Gymnasium floors are warped; boilers are broken; locker rooms freeze in the winter; lab sinks are broken; paint and plaster are peeling off the walls; firedoors do not function; termites infest many buildings. The list can go on for pages. For all the reasons outlined in this report, the schools are falling apart faster than DSB can repair them.

We have made a number of recommendations in this report which, if DSB pursues them in earnest, will produce efficiencies in its operation. It may take until the second year of a five year program to achieve any savings, but DSB should be able to get more for its money.

In the five year period FY 1985-1989, the Division of School Buildings should, at a rock-bottom minimum, achieve $7.5 million cost-savings in the Bureau of Maintenance through aggressive implementation of operational and structural reforms. (Table 62 contains a break-out of the funding proposal.)

The Bureau of Plant Operation should, in the same period, expect, at a minimum, to achieve $25.0 million in cost-savings by having the custodians perform more minor repairs. These are net savings after any "gain-sharing" with custodians. This $25.0 million is a conservative estimate and we would expect the Board of Education to get much more from the custodians over the next five years.

The City Council has proposed adding $15 million in contracts for the Bureau of Maintenance. This is the least that is needed. We propose that $20 million be added to the base budget for FY 1985 and $15 million for each of the four following years, for a total of $80 million. (The "base budget" is simply the FY 1984 amount extended with inflation escalators.)

These three sources of funding total to $112.5 million for the FY 1985-1989 period. The Board is expected to make up $32.5 million of this in operational and structural efficiencies.

The expense budget funding increase should go towards painting, window repair, removal of code violations, patching of roofs under six years of age, boiler repair, fixing laboratory sinks and equipment, thermostat repairs, boiler and washroom repairs. In each case failure to effect immediate repairs either leads to major repairs later or a sharp drop in morale among students, faculty and staff. Table 54 contains the FY 1985 expense budget request of DSB for contract work. Our proposed funding program should allow DSB to replicate this program every year for the next five years, i.e. 25 high schools and 160 district schools would be painted for $17 million and still leave $95 million for windows, roofs and other items.

By FY 1989 the extra $112.5 million, combined with a "base budget" of close to $200 million for maintenance (codes 0631 and 0633 in Tables 37-39), should allow DSB to bring the vast majority of the schools into a good state of repair.

On the capital side, the Division of School Buildings has requested $1.057 billion over the next four years for both new construction and modernizations. (See Tables 48-53.) Of this, approximately $657.5 million is aimed at school modernizations. Most of these capital funds are under the control of the Bureau of Construction and not the Bureau of Maintenance, although Maintenance does do some capital work.

In general we support the level of capital budget financing that the Board and DSB have proposed. Our concerns focus on a number of key problem areas that plague most city-financed construction work.

The Board of Education, as all city agencies, is subject to New York State's Wicks Law which requires four separate construction contracts on major projects (electrical, plumbing, heating/ventilating/air conditioning and general construction.) Estimates by various city agencies are that the Wicks Law raises construction costs from 10%-25%. Using the lower figure, 10%, we estimate that $65.8 million in modernization funds will be wasted by the Board over the next four years because of this law, and $40.0 million in new construction. The city and the Board cannot afford to give away $105.8 million to keep the construction trades happy. The repeal of the Wicks Law must be a high priority of the Board and the City in its State legislative program.

We support the general tenor of the City Planning Commission's position in its annual Capital Needs and Priorities for the City of New York document. The Commission's main concerns are:

1. The emphasis must be on modernization rather than new construction;

2. The Board, in light of falling school utilization (see Tables 30-36), should close schools with very low utilization and allow the buildings to be used for other purposes such as community groups, city agencies, offices, etc. Emphasis should be given to closing schools with the highest maintenance costs.

3. The Board should not invest capital funds in schools that have a strong potential of being closed and recycled for other uses.

The closing of a school is one of the most difficult things the Board can do, with all the attendant community and political pressures it generates. However, keeping open inefficient, high-cost and underutilized schools in a period of severe demands for infrastructive financing citywide does not aid education. Even with the introduction of all-day kindergarten, smaller class size in first grade and increases in special education, there will still be substantial underutilization of schools. The Division of School Buildings regularly updates utilization figures. However, many principals feel that these statistics do not accurately reflect either the actual capacity or the programmatic space needs in their schools, e.g. the low class-sizes required for special education, the introduction of new shop classes. DSB should distribute the figures for each school for the principal's review on an annual basis. Also, there should be a committee of principals convened, for a limited period of time, to review the formula and data sources used to determine a school's capacity and current utilization. The alternative to closing some schools is spending less modernization funds on others.

Therefore, our recommendations in the capital budget area are:

1. The Board and the city should press the Governor and the Legislature to repeal the Wicks Law.

2. Methods of calculating school utilization rates should be improved, with principals' participation to better reflect the actual uses of school space.

3. The Board should move to close high-cost, underutilized schools, following EPP's earlier recommendations for avoiding community disruption and finding alternative uses for closed school buildings.

4. Before major capital improvements are made in an older school, the school's potential for closing should be assessed.

IV. WHERE DOES THE MONEY GO?

The Division of School Buildings FY 1984 expense budget is $188.706 million and goes towards the design, construction, operation and maintenance of the Board's 971 structures. (See Tables 37-39.) The overwhelming portion of the expense budget is for operation and maintenance, $171.927 million, or 91.11% in FY 1984 (budget codes 0621, 0623, 0631 and 0633 in Tables 37-39.)

We have suggested savings of $32.5 million total for the next five fiscal years, FY 1985-89, which is the least the Board should achieve in operation and maintenance, savings which should be "reinvested" in the physical plant.

The Bureau of Maintenance, as noted earlier, is the lead agency for making repairs of school buildings. The work is accomplished through some 432 in-house shop mechanics, and outside contractors. The budgeted amount for these two categories, including Bureau of Maintenance overhead, is $36.923 million in FY 1984 and $34.827 million in FY 1983. Using FY 1983 as an example, the area shops and central shops processed 30,806 PO-18's at a cost of $15.302 million (exclusive of contract costs). In the same fiscal year, these 30,806 PO-18's generated 1,305 contracts which were registered by DSB. There is not a one-to-one correspondence between contracts and PO-18's since some contracts may encompass dozens of PO-18's in several schools. The Board has not yet installed a complete management information system; we therefore, cannot calculate the average shop cost per repair, since the costs cited include both repairs and the time spent processing PO-18's and writing specs.

On the contract side, however, the Division of School Buildings has generated significantly more data. We received computer runs on both the number of contracts issued and the number of completed specifications waiting for contract funding. We analyzed the distribution of the contracts and the specifications "backlog". Tables 1-18, 22, 2729, and 45-46 contain data on the distribution of expense budget maintenance contracts for FY 1983 and Tables 55-61 contain information on the specifications "backlog". The narrative that follows points up the highlights of this analysis.

We focused on the regular elementary, middle and high schools in this analysis. We did not focus on special education schools, administrative and support buildings and rented space. The overwhelming majority of the contract funds in FY 1983 went to the 630 elementary schools, 179 IS/JHS schools and 105 academic and vocational high schools, a total of 914 structures. Of the $12.506 million in contracts registered in FY 1983, 95.7% went for to these 914 schools. ("Registered" is a technical term meaning that the City Comptroller has registered the contract and work can proceed. A contract can be registered in FY 1983, say June 30th, and the funds may not be spent until FY 1984.) Tables 1-3 contain a breakdown of the amount spent per district and borough, the number of contracts and the number of schools per district and the amount spent per school in each district. (Each of the contracts

in these tables was aimed at a specific school in a district.) DSB registered $5.074 million for elementary and middle schools in FY 1983, or $6,272.34 per school. Table 4 breaks out, in a borough basis, the same data for high schools. In FY 1983 DSB registered $2.022 million or $19,257.08 per high school.

The Division of School Buildings issued $4.870 million in contracts that covered more than one school; DSB refers to these as "borough various" and "citywide various." (See Tables 6-8.) We allocated this amount to the elementary, IS/JHS and HS schools, on a borough basis, in proportion to amounts spent on these categories in Tables 1-5. Tables 9-13 show the allocation and Tables 14-17 summarize the data.

Using these amounts, DSB averaged $13,092.53 per school, for 914 schools, in maintenance contracts in FY 1983. (Table 17 has a breakdown by borough and school category.)

We next looked at the age distribution of these 914 school buildings. Our goal was to see if contract spending was correlated with the age of schools in a district. Tables 18-20 have a breakdown, by decade, of the elementary and middle schools, by district and borough. We constructed an "age score" for each district by assigning a value of "10" to each school built before 1900, a "9" for a school built in the period 1900-1909, an "8" for the period 1910-1919 and so on. Table 21 contains the age scores for each district and borough. We then ran a regression of the average amount spent per school (using the data from Table 3) and the average age score on a district level. Although amounts spent vary widely among the districts (from $2,360 per school in CSD 22 to $10,872 in CSD 1), the correlation between age and amount spent is virtually zero. We also correlated the amount spent per school with the school population's ethnicity, and found almost no correlation. (See Tables 22 and 45.) The interpretation of this that is most easy to adopt is that DSB officials try not to play favorites and allocate funds based more on immediate need rather than on any long-range preventive maintenance program. Presumably, older schools require more work. Given that capital funds for modernization go towards older schools, it is perhaps reasonable that the allocation of expense contracts does not correlate with the age of schools. A confirmation of this is found in Tables 55 and 59 where a similar analysis on the "backlog" of specifications is found. The Division has contracts waiting which, on a per-school basis by district, have almost the same correlation with age and the amount spent, i.e. almost zero. This is not to say that all schools are treated fairly. Our correlations dealt with districts; some individual schools are in very poor condition, and do not receive the funds they need.

The backlog itself is $26.341 million for 1984, more than twice the amount registered by DSB in FY 1983. (See Table 55-58.) The backlog grew by $11.264 million between June, 1982 and March, 1984 and will continue to grow at about the same rate for several more years. Our proposal for an extra $15 million a year for the next five years will allow the Division to reduce the backlog to zero in a little more than two years and get a jump on preventive maintenance programs.

APPENDICES

I. Tables 1-62

II. Excerpt from Arthur Young Report.

III. Excerpt from Coalition of High School Principals and Confederation of City-wide Parents Associations Position Paper on the 1983-84 School Budget.

IV. Bibliography.

TABLE 1

EXPENSE MAINTENANCE CONTRACTS
SPECIFIC TO ELEMENTARY SCHOOLS* IN CSD's
FY '83

CSD/BOROUGH	EXPENSE CONTRACTS AMOUNT	#	NO. PS SCHOOLS IN CSD	AV. CONTRACT AMT. PER SCHOOL
MANHATTAN				
1	$ 75,063	14	14	$5,361.64
2	149,437	28	22	6,792.59
3	112,148	13	17	6,596.94
4	112,138	20	16	7,548.23
5	98,127	12	13	7,325.15
6	34,681	8	11	3,152.82
Subtotal	$581,594	95	93	$6,253.70
BRONX				
7	65,813	12	17	3,871.35
8	73,951	19	20	3,697.55
9	124,833	17	25	4,993.32
10	176,030	28	21	8,382.38
11	64,175	18	23	2,790.22
12	115,404	22	16	7,212.75
Subtotal	$620,206	116	122	$5,083.66
BROOKLYN				
13	141,271	14	19	7,435.32
14	116,889	18	20	5,844.45
15	196,873	21	21	9,374.90
16	66,130	10	13	5,086.92
17	126,325	14	17	7,430.88
18	109,704	18	13	8,438.77
19	99,200	16	21	4,723.81
20	87,757	17	22	3,988.95
21	79,470	26	22	3,612.70
22	38,490	10	23	1,673.48
23	74,524	13	15	4,968.27
32	27,932	7	13	2,148.62
Subtotal	$1,164,565	184	219	$5,317.65
QUEENS				
24	$ 136,258	22	19	6,193.55
25	98,588	19	22	4,481.27
26	104,473	20	20	5,223.65
27	100,953	25	29	3,481.14
28	73,501	19	22	3,340.95
29	165,609	27	23	7,200.39
30	130,013	10	20	6,500.63
Subtotal	$ 809,395	142	155	$5,221.90
STATEN ISLAND				
31	$ 330,736	45	41	$8,066.78
CITY WIDE TOTALS	$3,506,498	582	630	$5,565.87

* Hereafter, called PS

TABLE 2

EXPENSE MAINTENANCE CONTRACTS
SPECIFIC TO IS/JHS SCHOOLS IN CSD's
FY '83

CSD/BOROUGH	EXPENSE CONTRACTS AMOUNT	#	NO. IS/JHS SCHOOLS IN CSD	AV. CONTRACT AMT. PER SCHOOL
MANHATTAN				
1	$120,369	7	4	$ 30,092.25
2	31,004	7	6	5,167.33
3	63,000	2	4	15,750.00
4	24,903	4	4	6,225.75
5	55,492	5	4	13,873.00
6	1,199	1	4	299.75
Subtotal	$295,958	26	26	$ 11,383.00
BRONX				
7	$ 22,995	4	6	$ 3,832.50
8	58,669	11	9	6,518.78
9	176,626	6	8	22,078.25
10	137,315	13	8	17,164.38
11	11,076	4	7	1,582.29
12	12,734	2	7	1,819.14
Subtotal	$419,415	40	45	$ 9,320.33
BROOKLYN				
13	$ 84,995	6	4	$ 21,248.75
14	6,653	3	7	950.43
15	25,723	7	5	5,144.60
16	51,907	9	3	17,302.33
17	40,977	3	5	8,195.40
18	30,139	7	5	6,027.80
19	1,600	1	5	320.00
20	36,359	3	6	6,059.83
21	182,839	12	6	30,473.17
22	27,595	7	5	5,519.00
23	23,249	6	4	5,812.25
32	25,666	6	5	5,133.20
Subtotal	$537,702	70	60	$ 8,961.70
QUEENS				
24	$ 32,658	10	6	5,443.00
25	28,937	6	6	4,822.83
26	23,544	5	5	4,708.80
27	61,190	9	6	10,198.33
28	42,237	8	6	7,039.50
29	38,882	6	5	7,776.40
30	45,584	6	5	9,116.80
Subtotal	$273,032	50	39	$ 7,000.82
STATEN ISLAND				
31	$ 41,718	14	9	$ 4,635.33
CITY WIDE TOTALS	$1,567,825	200	179	$ 8,758.80

TABLE 3

EXPENSE MAINTENANCE CONTRACTS
SPECIFIC TO PS & IS/JHS IN CSD's
FY '83

CSD/BOROUGH	EXPENSE CONTRACTS AMOUNT	#	NO. PS & IS/JHS SCHOOLS IN CSD	AV. CONTRACT AMT. PER SCHOOL
MANHATTAN				
1	$ 195,702	21	18	$10,872.23
2	180,441	35	28	6,444.32
3	175,148	15	21	8,340.38
4	137,041	24	20	6,852.05
5	153,619	17	17	9,036.41
6	35,871	9	15	2,391.40
Subtotal	$ 877,552	121	119	$ 7,374.39
BRONX				
7	$ 88,808	16	23	3,861.22
8	132,620	30	29	4,573.10
9	301,459	23	33	9,135.12
10	313,345	41	29	10,805.00
11	75,251	22	30	2,508.37
12	128,138	24	23	5,571.22
Subtotal	$1,039,621	156	167	$ 6,225.28
BROOKLYN				
13	$ 226,266	20	23	$ 9,837.65
14	123,542	21	27	4,576.63
15	222,596	28	26	8,561.38
16	118,037	19	16	7,377.31
17	167,302	17	22	7,604.64
18	139,843	25	18	7,769.06
19	100,800	17	26	3,876.92
20	124,116	20	28	4,432.71
21	262,309	38	28	9,368.18
22	66,085	17	28	2,360.18
23	97,773	19	19	5,145.97
32	53,598	13	18	2,977.56
Subtoal	$1,702,267	254	279	$ 6,101.32
QUEENS				
24	168,916	32	25	6,756.64
25	127,525	25	28	4,554.46
26	128,017	25	25	5,120.68
27	162,143	34	35	4,632.66
28	114,538	26	28	4,090.64
29	204,491	33	28	7,303.25
30	175,597	16	25	7,023.88
Subtotal	$1,082,427	192	194	$ 5,579.52
STATEN ISLAND				
31	$ 372,456	59	50	$ 7,449.12
CITY WIDE TOTALS	$5,074,323	782	809	$ 6,272.34

TABLE 4

EXPENSE MAINTENANCE CONTRACTS
SPECIFIC TO HS IN BOROUGHS
FY '83

BOROUGH	EXPENSE AMOUNT	CONTRACTS NO.	NO. HIGH SCHOOLS	AV. CONTRACT AMT. PER SCHOOL
Manhattan	$ 352,906	34	22	$16,041.18
Bronx	632,621	60	19	33,295.84
Brooklyn	432,707	56	34	12,726.68
Queens	540,129	57	22	24,551.32
Staten Island	63,630	15	8	7,973.75
Total	$2,021,993	222	105	$19,257.08

TABLE 5

EXPENSE MAINTENANCE CONTRACTS
MISCELLANEOUS
FY '83

BOROUGH	AMOUNT	NO.
Manhattan	$ 61,742	12
Bronx	17,124	4
Brooklyn	264,295	20
Queens	190,646	10
Staten Island	4,140	2
Total	$537,947	48

TABLE 6

EXPENSE MAINTENANCE CONTRACTS
BOROUGH SPECIFIC "VARIOUS"
FY '83

BOROUGH	AMOUNT	NO.
Manhattan	$ 590,198	57
Bronx	778,456	32
Brooklyn	870,696	64
Queens	741,643	59
Staten Island	129,726	15
Total	$3,110,719	227

TABLE 7

EXPENSE MAINTENANCE CONTRACTS
CITYWIDE "VARIOUS"
FY '83

CITYWIDE	AMOUNT	NO.
All Boroughs	$1,759,535	27

TABLE 8

EXPENSE MAINTENANCE CONTRACTS
TOTAL ALL CATEGORIES
FY '83

CATEGORY	AMOUNT	NO.
PS	$ 3,506,498	582
IS/JHS	1,567,825	200
HS	2,021,993	222
Miscellaneous	537,947	48
Borough Various	3,110,719	227
Citywide Various	1,759,535	27
Total	$12,504,517	1,306

TABLE 9

EXPENSE MAINTENANCE CONTRACTS
TOTAL PS & IS/JHS & HS SPECIFIC CONTRACTS
AND % PS, IS/JHS AND HS OF TOTAL SPECIFIC
FY '83

BOROUGH	TOTAL SPECIFIC PS + IS/JHS + HS=T	% PS OF T	% IS/JHS OF T	% HS OF T
Manhattan	$ 1,230,458	47.27%	24.05%	28.68%
Bronx	1,672,242	37.09	25.08	37.83
Brooklyn	2,134,974	54.54	25.19	20.27
Queens	1,622,556	49.88	16.83	33.29
Staten Island	436,086	75.84	9.57	14.59
Total	$ 7,096,316	49.41%	22.09%	28.49%

TABLE 10

EXPENSE MAINTENANCE CONTRACTS
DISTRIBUTION OF "BOROUGH VARIOUS"
TO PS, IS/JHS AND HS WITHIN BOROUGHS
FY '83

BOROUGH	AMOUNT "BOROUGH VARIOUS"	AMOUNT TO PS	AMOUNT TO IS/JHS	AMOUNT TO HS
Manhattan	$ 590,198	$ 278,986	$ 141,943	$ 169,269
Bronx	778,456	288,729	195,237	294,490
Brooklyn	870,696	474,878	219,328	176,490
Queens	741,643	369,931	124,819	246,893
Staten Island	129,726	98,387	12,410	18,929
Total	$3,110,719	$1,510,911	$ 693,737	$ 906,071

TABLE 11

EXPENSE MAINTENANCE CONTRACTS
DISTRIBUTION OF "CITYWIDE VARIOUS"
TO PS, IS/JHS AND HS
FY '83

CATEGORY	AMOUNT OF SPECIFIC CONTRACTS	% OF TOTAL SPECIFIC	DISTRIBUTION OF "CITYWIDE VARIOUS" TO CATEGORY
PS	$ 3,506,498	49.41%	$ 869,386
IS/JHS	1,567,825	22.09	388,681
HS	2,021,993	28.50	501,468
TOTAL	$ 7,096,316	100.00%	$1,759,535

TABLE 12[1]

EXPENSE MAINTENANCE CONTRACTS
PERCENT DISTRIBUTION OF PS, IS/JHS
AND HS BY BOROUGH
FY '83

BOROUGH	% BOROUGH PS OF TOTAL PS OF SPECIFIC CONTRACTS	% BOROUGH IS/JHS OF TOTAL IS/JHS OF SPECIFIC CONTRACTS	% BOROUGH HS OF TOTAL HS OF SPECIFIC CONTRACTS
Manhattan	16.59%	18.88%	17.45%
Bronx	17.69	26.75	31.29
Brooklyn	33.21	34.30	21.40
Queens	23.08	17.41	26.71
Staten Island	9.43	2.66	3.15
Total	100.00%	100.00%	100.00%

(1) Entries are found by dividing borough totals in tables 1, 2 and 4 by the city-wide totals in Tables 1, 2 and 4.

TABLE 13(1)

EXPENSE MAINTENANCE CONTRACTS
DISTRIBUTION OF "CITYWIDE VARIOUS"
CATEGORIES TO BOROUGH PS, IS/JHS, and HS
FY '83

BOROUGH	AMOUNT TO PS	AMOUNT TO IS/JHS	AMOUNT TO HS	TOTAL TO BOROUGH
Manhattan	$144,231	$ 73,383	$ 87,506	$ 305,120
Bronx	153,794	103,972	156,909	414,675
Brooklyn	288,723	133,318	107,314	529,355
Queens	200,654	67,669	133,943	402,266
Staten Island	81,984	10,339	15,796	108,119
Total	$869,386	$388,681	$501,468	$1,759,535

(1) Entries are found by multiplying column (3) of Table 11 by the percentages in columns (1), (2) and (3) in Table 12.

TABLE 14(1)

EXPENSE MAINTENANCE CONTRACTS
TOTAL PS AMOUNTS - BOROUGHS
FY '83

BOROUGH	TOTAL PS	NO. PS SCHOOLS	AMOUNT/SCHOOL
Manhattan	$1,004,811	93	$10,804.42
Bronx	1,062,729	122	8,710.89
Brooklyn	1,928,166	219	8,804.41
Queens	1,379,980	155	8,903.10
Staten Island	511,109	41	12,466.07
Total	$5,886,795	630	$ 9,344.12

(1) Entries are found from using borough totals in Table 1, and from entries in Tables 10 and 13.

TABLE 15(1)

EXPENSE MAINTENANCE CONTRACTS
TOTAL IS/JHS AMOUNTS - BOROUGHS
FY '83

BOROUGH	TOTAL IS/JHS	NO. IS/JHS	AMOUNT/SCHOOL
Manhattan	$ 511,284	26	$19,664.77
Bronx	718,624	45	15,969.42
Brooklyn	890,348	60	14,839.13
Queens	465,520	39	11,936.41
Staten Island	64,467	9	7,163.00
Total	$2,650,243	179	$14,805.83

(1) Entries are found from using borough totals in Tables 2, and from entries in Tables 10 and 13.

TABLE 16(1)

EXPENSE MAINTENANCE CONTRACTS
TOTAL HS AMOUNTS - BOROUGHS
FY '83

BOROUGH	TOTAL HS	NO. HS	AMOUNT/SCHOOL
Manhattan	$ 609,681	22	$27,712.77
Bronx	1,084,020	19	57,053.68
Brooklyn	716;511	34	21,073.85
Queens	920,965	22	41,862.05
Staten Island	98,355	8	12,294.38
Total	$3,429,532	105	$32,662.21

(1) Entries are found from using borough totals in Table 4, and from entries in Tables 10 and 13.

TABLE 17

EXPENSE MAINTENANCE CONTRACTS
BOROUGH DISTRIBUTIONS
FY '83

BOROUGH	TOTAL PS	TOTAL IS	TOTAL HS	TOTAL	NO. SCHOOLS	AMOUNT/ SCHOOL
Manhattan	$1,004,811	$ 511,284	$ 609,681	$ 2,125,776	141	$15,076.43
Bronx	1,062,729	718,624	1,084,020	2,865,373	186	15,405.23
Brooklyn	1,928,166	890,348	716,511	3,535,025	313	11,294.01
Queens	1,379,980	465,520	920,965	2,766,465	216	12,807.71
Staten Island	511,109	64,467	98,355	673,931	58	11,619.50
Totals	$5,886,795	$2,650,243	3,429,532	$11,966,570	914	$13,092.53

TABLE 18
AGE DISTRIBUTION
PS SCHOOLS

CSD/BOROUGH	<1900	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980 -	NO. Schools
MANHATTAN:											
1	0	4	2	0	0	0	4	3	1	0	14
2	5	4	0	3	0	0	5	2	2	0	22
3	2	0	0	0	1	0	4	10	0	0	17
4	1	2	2	1	0	0	2	7	1	0	16
5	0	0	0	1	0	2	3	7	0	0	13
6	0	1	1	4	1	0	1	2	1	0	11
Subtotal	8	11	5	9	2	2	20	31	5	0	93
BRONX:											
7	3	1	0	2	0	0	1	8	2	0	17
8	0	1	1	7	1	0	4	1	3	0	20
9	5	2	2	6	1	1	3	1	4	0	25
10	3	0	2	8	3	0	3	0	2	0	21
11	0	2	1	5	8	0	2	1	4	0	23
12	0	1	3	5	2	0	0	2	3	0	16
Subtotal	11	7	9	33	17	1	13	13	18	0	122
BROOKLYN:											
13	0	3	0	2	0	0	8	5	1	0	19
14	2	4	3	2	0	0	2	5	1	1	20
15	3	6	2	1	2	0	3	4	0	0	21
16	0	0	1	0	0	1	2	8	1	0	13
17	0	3	1	3	2	1	2	1	3	1	17
18	0	1	0	4	4	0	3	1	0	0	13
19	2	3	2	3	2	0	2	3	4	0	21
20	0	6	5	8	2	0	0	0	0	1	22
21	0	2	2	10	5	0	0	2	1	0	22
22	1	4	0	8	3	1	5	1	0	0	23
23	1	5	2	2	0	0	0	5	0	0	15
32	3	4	0	0	0	0	0	3	3	0	13
Subtotal	12	41	18	43	20	3	27	38	14	3	219
QUEENS:											
24	0	6	2	5	3	0	2	1	0	0	19
25	0	1	0	3	5	2	9	2	0	0	22
26	0	0	2	0	4	3	10	1	0	0	20
27	1	2	1	6	5	1	4	6	1	0	29
28	0	1	1	8	4	1	4	2	1	0	22
29	1	0	1	11	6	1	0	2	1	0	23
30	0	2	3	5	6	0	4	2	0	0	20
Subtotal	2	12	10	38	33	8	33	16	3	0	155
Staten Island 31	4	2	2	8	5	0	5	9	5	1	41
CityWide Total	37	73	44	131	77	14	98	107	45	4	630

TABLE 19

AGE DISTRIBUTION
IS/JHS SCHOOLS

CSD/BOROUGH	<1900	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980 -	NO. Schools
MANHATTAN:											
1	0	0	0	1	0	0	1	1	1	0	4
2	0	2	0	0	0	0	2	2	0	0	6
3	0	1	0	0	0	1	2	0	0	0	4
4	0	0	0	1	0	0	3	0	0	0	4
5	0	0	0	1	1	0	0	1	1	0	4
6	0	0	1	0	2	0	0	1	0	0	4
Subtotal	0	3	1	3	3	1	8	5	2	0	26
BRONX:											
7	0	0	0	0	0	0	2	1	3	0	6
8	0	0	1	0	0	0	4	1	3	0	9
9	0	0	0	1	1	1	0	3	3	0	8
10	0	0	1	2	1	0	2	0	1	1	8
11	0	0	0	0	1	0	3	1	2	0	7
12	0	0	0	0	1	0	0	1	5	0	7
Subtotal	0	0	2	3	4	1	11	6	17	1	45
BROOKLYN:											
13	0	0	0	0	0	0	3	1	0	0	4
14	0	1	1	0	1	0	1	2	1	0	7
15	0	2	0	0	0	0	1	2	0	0	5
16	0	0	0	1	0	0	1	0	1	0	3
17	0	0	0	1	1	0	1	1	1	0	5
18	0	0	0	0	2	0	2	1	0	0	5
19	0	0	1	0	0	0	1	2	1	0	5
20	0	0	0	2	3	0	1	0	0	0	6
21	0	0	0	1	2	0	0	3	0	0	6
22	0	0	0	0	1	0	3	1	0	0	5
23	0	0	0	0	0	0	1	3	0	0	4
32	0	1	0	0	0	0	0	2	2	0	5
Subtotal	0	4	2	5	10	0	15	18	6	0	60
QUEENS:											
24	0	0	2	3	0	0	0	1	0	0	6
25	0	0	0	0	0	0	4	0	2	0	6
26	0	0	0	0	0	0	5	0	0	0	5
27	0	0	0	0	0	0	2	2	2	0	6
28	0	0	0	0	1	1	2	2	0	0	6
29	0	0	0	1	0	0	1	2	1	0	5
30	0	0	0	1	2	0	2	0	0	0	5
Subtotal	0	0	2	5	3	1	16	7	5	0	39
STATEN ISLAND 31	0	0	0	0	1	0	0	6	2	0	9
Citywide Totals	0	7	7	16	21	3	50	42	32	1	179

TABLE 20

AGE DISTRIBUTION
PS & IS/JHS SCHOOLS

CSD/BOROUGH	<1900	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980 -	NO. Schools
MANHATTAN:											
1	0	4	2	1	0	0	5	4	2	0	18
2	5	6	0	3	0	0	8	4	2	0	28
3	2	1	0	0	1	1	6	10	0	0	21
4	1	2	2	2	0	0	5	7	1	0	20
5	0	0	0	2	1	[illegible]	3	8	1	0	17
6	0	1	2	4	3	[illegible]	1	3	1	0	15
Subtotal	[illegible]	14	6	12	5	3	28	36	7	0	119
BRONX:											
7	3	1	0	2	0	0	3	9	5	0	23
8	0	1	2	7	3	0	8	2	6	0	29
9	5	2	2	7	2	2	3	3	7	0	33
10	3	0	3	10	4	0	5	0	3	1	29
11	0	2	1	5	9	0	5	2	6	0	30
12	0	1	3	5	3	0	0	3	8	0	23
Subtotal	11	7	11	36	21	2	24	19	35	1	167
BROOKLYN:											
13	0	3	0	2	0	0	11	6	1	0	23
14	2	5	4	2	1	0	3	7	2	1	27
15	3	8	2	1	2	0	1	6	0	0	26
16	0	0	1	1	0	1	1	8	2	0	14
17	0	3	1	4	3	1	3	2	4	1	22
18	0	1	0	4	6	0	5	2	0	0	18
19	2	3	3	3	2	0	3	5	5	0	26
20	0	4	5	10	5	0	1	0	0	1	28
21	0	2	2	11	7	0	0	5	1	0	28
22	1	4	0	8	4	1	8	2	0	0	28
23	1	5	2	2	0	0	1	8	0	0	19
32	3	5	0	0	0	0	0	5	5	0	18
Subtotal	12	45	20	48	30	3	42	56	20	3	279
QUEENS:											
24	0	6	4	8	3	0	2	2	0	0	25
25	0	1	0	3	5	2	13	2	2	0	28
26	0	0	2	0	4	3	15	1	0	0	25
27	1	2	3	6	5	1	6	8	3	0	35
28	0	1	1	8	5	2	6	4	1	0	28
29	1	0	1	12	4	1	1	4	2	0	28
30	0	2	1	6	8	0	6	2	0	0	25
Subtotal	2	12	12	43	36	9	49	23	8	0	194
STATEN ISLAND											
31	4	2	2	8	6	0	5	15	7	1	50
Citywide Totals	37	80	51	147	98	17	148	149	77	5	809

TABLE 21

AGE "SCORE" (1)

SCHOOL BUILDING - PS AND IS/JHS

CSD/BOROUGH	AGE SCORE PS	NO. PS SCHOOLS	AGE SCORE IS/JHS	NO. IS SCHOOLS	AGE SCORE PS+IS/JHS	NO. PS+ IS/JHS SCHOOLS
MANHATTAN:						
1	5.64	14	4.00	4	5.28	18
2	6.41	22	5.33	6	6.18	28
3	4.24	17	5.50	4	4.48	21
4	5.13	16	4.75	4	5.05	20
5	3.85	13	4.50	4	4.00	17
6	5.72	11	5.75	4	5.75	15
Subtotal	5.24	93	5.00	26	5.18	119
BRONX:						
7	5.00	17	2.83	6	4.43	23
8	5.45	20	3.67	9	4.90	29
9	6.40	25	3.75	8	5.76	33
10	6.48	21	4.88	8	6.03	29
11	5.57	23	3.57	7	5.10	30
12	5.75	16	2.71	7	4.83	23
Subtotal	5.82	122	3.62	45	5.23	167
BROOKLYN:						
13	4.74	19	3.75	4	4.37	23
14	6.00	20	5.00	7	5.74	27
15	6.81	21	5.60	5	6.58	26
16	3.62	13	4.33	3	3.75	16
17	5.35	17	4.40	5	5.14	22
18	5.85	13	4.60	5	5.50	18
19	5.76	21	4.00	5	5.42	26
20	7.41	22	6.00	6	7.11	28
21	6.45	22	4.67	6	6.07	28
22	6.43	23	4.20	5	6.04	28
23	6.67	15	3.25	4	5.95	19
32	6.23	13	3.80	5	5.56	18
Subtotal	6.04	219	4.55	60	5.72	279
QUEENS:						
24	7.05	19	6.67	6	6.96	25
25	5.09	22	3.00	6	4.71	28
26	4.90	20	4.00	5	4.72	25
27	5.69	29	3.00	6	5.23	35
28	5.71	22	4.17	6	5.39	28
29	6.26	23	3.80	5	5.82	28
30	5.95	20	5.40	5	5.84	25
Subtotal	5.79	155	4.33	39	5.50	194
STATEN ISLAND:						
31	5.32	41	3.11	9	4.92	50
CITY WIDE TOTALS	5.77	630	4.26	179	5.44	809

(1) Entries found by using Tables 18, 19 and 20 and applying the following weights to each column: 10 for schools before 1900; 9 for schools in bracket 1900-1909; and so on to a weight of 1 for the bracket 1940-present. The sum of the weighted number of schools in a given category (e.g. PS or HS) divided by the total number of schools in that category yields an average age score for that category. For example, in Table 19 there are 4 IS/JHS schools in CSD #1. Applying the appropriate weights to row 1 of Table 19 we get: 7x1+4x1+3x1+2x1 =16 = total age score. Divide 16 by 4, the number of schools, yields an average age score of 4.00 for CSD #1's IS/JHS schools.

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TABLE 22(1)

CORRELATION BETWEEN CSD AGE SCORES AND AMOUNT SPENT/SCHOOL FY '83

CSD	AGE SCORE	AMOUNT/SCHOOL
1	5.28	$ 10,872.33
2	6.18	6,444.32
3	4.48	8,340.38
4	5.05	6,852.05
5	4.00	9,036.41
6	5.73	2,391.40
7	4.43	3,861.22
8	4.90	4,573.10
9	5.76	9,135.12
10	6.03	10,805.00
11	5.10	2,508.37
12	4.83	5,571.22
13	4.57	9,837.65
14	5.74	4,576.63
15	6.58	8,561.38
16	3.75	7,377.31
17	5.14	7,604.64
18	5.50	7,769.06
19	5.42	3,876.92
20	7.11	4,432.71
21	6.07	9,368.18
22	6.04	2,360.18
23	5.95	5,145.97
32	5.56	2,977.56
24	6.96	6,756.64
25	4.71	4,554.46
26	4.72	5,120.68
27	5.23	4,632.66
28	5.39	4,090.64
29	5.82	7,303.25
30	5.84	7,023.88
31	4.92	7,449.12
City-wide	5.44	$ 6,272.34

Correlation Coefficient R = -0.0583

(1) The age scores are from Table 21 and the amount spent per school is from Table 3, specific contracts for PS and IS/JHS.

TABLE 23

AGE DISTRIBUTION
HIGH SHOOLS

CSD/BOROUGH	<1900	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980 -	NO. Schools
MANHATTAN	1	4	2	4	2	1	1	2	4	1	22
BRONX	0	1	0	5	6	1	1	1	4	0	19
BROOKLYN	0	6	3	5	7	4	3	3	3	0	34
QUEENS	0	1	1	5	4	2	3	4	2	0	22
STATEN ISLAND	1	1	0	1	2	0	0	1	1	1	8
Total	2	13	6	20	21	8	8	11	14	2	105

TABLE 24

AGE "SCORE" (1)
SCHOOL BUILDINGS - HS

BOROUGH	AGE SCORE - HS	NO. OF HS
Manhattan	5.73	22
Bronx	5.26	19
Brooklyn	5.94	34
Queens	5.18	22
Staten Island	5.50	8
Total	5.58	105

(1) Age score is determined in the same fashion as in Table 21.

TABLE 25

BOROUGH AGE "SCORE" (1)
ALL SCHOOLS

BOROUGH	PS & IS/JHS SCORE	HS SCORE	TOTAL AGE SCORE	NO. SCHOOLS
Manhattan	5.18	5.73	5.27	141
Bronx	5.23	5.26	5.23	186
Brooklyn	5.72	5.94	5.74	313
Queens	5.50	5.18	5.47	216
Staten Island	4.92	5.50	5.00	58
Total	5.44	5.58	5.52	914

(1) Age score is determined in same fashion as in Table 21.

TABLE 26

CORRELATION BETWEEN
BOROUGH AGE SCORES AND
TOTAL CONTRACT AMOUNT/SCHOOL(1)
FY' 83

BOROUGH	AGE SCORE	EXPENSE CONTRACT AMOUNT/SCHOOL
Manhattan	5.27	$15,076.43
Bronx	5.23	15,405.23
Brooklyn	5.74	11,294.01
Queens	5.47	12,807.71
Staten Island	5.00	11,619.50
Total	5.52	$13,092.53

Correlation coefficient = -0.305

(1) Contract amounts per school are from Table 17 and age scores from Table 25.

TABLE 27

EXPENSE MAINTENANCE CONTRACTS
SIZE DISTRIBUTION
FY '83

AMOUNT OF CONTRACT	NO. CONTRACTS	% OF TOTAL
$ 0-999	90	6.89%
1,000-1,999	273	20.90
2,000-2,999	188	14.40
3,000-3,999	125	9.57
4,000-4,999	184	14.09
Subtotal	860	65.85
5,000-5,999	51	3.91
6,000-6,999	29	2.22
7,000-7,999	39	2.99
8,000-8,999	31	2.37
9,000-9,999	25	1.91
Subtotal	175	13.40
10,000-14,999	60	4.59
15,000-19,999	50	3.83
20,000-24,999	34	2.60
25,000-49,999	83	6.36
50,000-99,999	35	2.68
100,000 +	9	0.69
Subtotal	271	20.75
Total	1,306	100.00%

TABLE 28

EXPENSE MAINTENANCE CONTRACTS
SIZE DISTRIBUTION (1)
FY '81 - '84

AMOUNT OF CONTRACT	NO. OF CONTRACTS			
	FY '81	FY '82	FY '83	FY '84
$ 0-4,999	110	1,540	860	1,199
5,000-9,999	117	236	175	177
10,000-14,999	53	97	70	69
15,000-19,999	21	75	50	32
20,000-24,999	9	44	34	37
25,000-49,999	46	70	83	56
50,000-99,999	14	46	35	15
100,000+	1	20	9	19
Total	371	2,128	1,306	1,604

(1) Partial data for FY '84

TABLE 29

EXPENSE MAINTENANCE CONTRACTS
CONTRACTS IN $4900-4999 RANGE
FY '84

	NO. IN RANGE	NO. EXPECTED(1)
FY '81	3	2
FY '82	62	31
FY '83	43	17
FY '84	53	24
Totals	161	74

(1) The number expected is the number of $100 ranges in the bracket $0-4999 (50) divided into the number of contracts in the $0-4999 range. This assumes a flat distribution in the $0-4999 range. For example, in FY '83 there were 860 contracts in the $0-4999 range. Dividing this by 50 yields 17.2 contracts which we rounded to 17.

TABLE 30

CAPACITY, ENROLLMENT AND UTILIZATION OF SCHOOLS
PS - FY '83

CSD/BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN			
1	12,461	7,456	59.83%
2	20,502	14,119	68.87
3	16,643	9,178	55.15
4	21,046	13,240	62.91
5	13,537	7,690	56.81
6	12,232	14,322	117.09
Subtotal	96,421	66,005	68.46%
BRONX			
7	17,251	9,317	54.01%
8	19,354	12,575	64.97
9	24,071	18,862	78.36
10	19,188	21,328	111.15
11	20,880	13,679	65.51
12	18,922	11,456	60.54
Subtotal	119,666	87,217	72.88%
BROOKLYN			
13	23,217	16,594	71.47%
14	20,305	12,662	62.36
15	18,707	15,731	84.09
16	15,105	7,841	51.91
17	17,193	17,846	103.80
18	11,880	11,107	93.49
19	21,511	17,621	81.92
20	21,388	15,065	70.44
21	19,496	13,722	70.38
22	21,069	17,953	85.21
23	14,160	8,632	60.96
32	12,922	10,841	83.90
Subtotal	216,953	165,615	76.34%
QUEENS			
24	15,603	15,158	97.15%
25	18,544	13,283	71.63
26	14,082	7,915	56.21
27	23,180	19,404	83.71
28	17,417	13,946	80.07
29	18,459	14,595	79.07
30	18,739	15,501	82.72
Subtotal	126,024	99,802	79.19%
STATEN ISLAND			
31	33,014	20,371	61.70%
CITY WIDE TOTALS	592,078	439,010	74.05%

TABLE 31

CAPACITY, ENROLLMENT AND UTILIZATION OF SCHOOLS
IS/JHS - FY '83

CSD/BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN			
1	5,546	3,391	61.14%
2	6,968	4,854	69.66
3	5,137	3,219	62.66
4	5,200	2,837	54.56
5	5,719	3,516	61.48
6	4,159	4,529	108.90
Subtotal	32,729	22,346	68.28%
BRONX			
7	9,028	4,921	54.51%
8	11,775	8,542	72.54
9	10,385	7,691	74.06
10	7,683	8,416*	109.54
11	9,184	7,831	85.27
12	7,393	3,816	51.62
Subtotal	55,448	41,217	74.33%
BROOKLYN			
13	4,792	3,278	68.41%
14	7,848	5,808	74.01
15	6,553	4,629	70.64
16	3,856	2,480	64.32
17	6,726	7,234	107.55
18	6,386	5,600	87.69
19	6,404	5,647**	88.18
20	7,804	8,014	102.69
21	8,946	6,433	71.91
22	6,877	6,226	90.53
23	5,459	3,748	68.66
32	7,401	4,843	65.44
Subtotal	79,052	63,940	80.88%
QUEENS			
24	7,187	8,502	118.30%
25	7,693	6,769	87.99
26	6,080	4,186	68.85
27	8,591	8,200	95.45
28	8,364	6,022	72.00
29	6,815	6,742	98.93
30	7,050	7,574	107.43
Subtotal	51,775	47,995	92.70%
STATEN ISLAND			
31	11,748	11,199	95.33%
CITY WIDE TOTALS	230,752	186,697***	80.91%

* Does not include 842 students located at sites other than regular IS or JHS schools.

** Does not include 576 students located at sites other than regular IS or JHS schools.

*** The 186,697 does not include the 1,418 students cited above.

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TABLE 32

CAPACITY, ENROLLMENT AND UTILIZATION OF SCHOOLS
PS + IS/JHS - FY '83

CSD/BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN			
1	18,007	10,847	60.24%
2	27,470	18,973	69.07
3	21,780	12,397	56.92
4	26,246	16,077	61.26
5	19,256	11,206	58.19
6	16,391	18,851	115.01
Subtotal	129,150	88,351	68.41%
BRONX			
7	26,279	14,238	54.18%
8	31,129	21,117	67.84
9	34,456	26,553	77.06
10	26,871	29,744	110.69
11	30,064	21,510	71.55
12	26,315	15,272	58.04
Subtotal	175,114	128,434	73.34%
BROOKLYN			
13	28,009	19,872	70.95%
14	28,153	18,470	65.61
15	25,260	20,360	80.60
16	18,961	10,321	54.43
17	23,919	25,080	104.85
18	18,266	16,707	91.47
19	27,915	23,268	83.35
20	29,192	23,079	79.06
21	28,442	20,155	70.86
22	27,946	24,179	86.52
23	19,619	12,380	63.10
32	20,323	15,684	77.17
Subtotal	296,005	229,555	77.55%
QUEENS			
24	22,790	23,660	103.82%
25	26,237	20,052	76.43
26	20,162	12,101	60.02
27	31,771	27,604	86.88
28	25,781	19,968	77.45
29	25,274	21,337	84.22
30	25,789	23,075	89.48
Subtital	177,804	147,797	83.12%
STATEN ISLAND			
31	44,762	31,570	70.53%
CITY WIDE TOTALS	822,830	625,707	76.04%

TABLE 33

CAPACITY, ENROLLMENT AND UTILIZATION [1]
OF HIGH SCHOOLS - ACADEMIC
FY '83

BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN	34,796	35,188	101.13%
BRONX	40,422	42,488	105.11
BROOKLYN	68,827	72,453	105.27
QUEENS	56,834	61,186	107.66
STATEN ISLAND	13,789	15,621	113.29
Totals	214,668	226,936[2]	105.71%

(1) Utilization refers to main building.

(2) Does not include 12,629 students on special programs.

TABLE 34

CAPACITY, ENROLLMENT AND UTILIZATION [1]
OF HIGH SCHOOLS - VOCATIONAL
FY '83

BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN	9,158	9,236	100.85%
BRONX	5,760	6,824	118.47
BROOKLYN	9,848	11,484	116.61
QUEENS	4,460	5,629	126.21
STATEN ISLAND	1,150	1,227	106.70
Totals	30,376	34,400	113.25%

(1) Utilization refers to main building.

TABLE 35

CAPACITY, ENROLLMENT AND UTILIZATION [1]
OF HIGH SCHOOLS - ALL
FY '83

BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN	43,954	44,424	101.07%
BRONX	46,182	49,312	106.78
BROOKLYN	78,675	83,937	106.69
QUEENS	61,294	66,815	109.01
STATEN ISLAND	14,939	16,848	112.78
Totals	245,044	261,336[2]	106.65%

(1) Utilization refers to main building.

(2) Does not include 12,629 students in special programs.

TABLE 36

BOROUGH SUMMARIES
CAPACITY, ENROLLMENT AND UTILIZATION
ALL SCHOOLS - FY '83

BOROUGH	CAPACITY	ENROLLMENT	% UTILIZATION
MANHATTAN	173,104	132,805	76.72%
BRONX	221,296	177,746	80.32
BROOKLYN	374,680	313,492	83.67
QUEENS	239,098	214,612	89.76
STATEN ISLAND	59,701	48,418	81.10
Total	1,067,879	887,073[1]	83.07%

(1) Does not include 12,629 students in special high school programs and 1,418 students in special junior high programs.

TABLE 37

DIVISION OF SCHOOL BUILDINGS
FS BUDGET

CODE	DESCRIPTION TOTALS	FY 1978	FY 1979 (1)	FY 1980 (1)	FY 1981 (1)	FY 1982 (1)	FY 1983	FY 1984 Projected	FY 1985 Bd. Proposal
0600	Lump Sum Allowances	$ 355,241	$ 3,057,943	$ 7,731,237	$ 16,282,962	$ 3,378,979	$ 6,612,822	$ 3,806,519	$ 6,566,519
11	Ex. Dir. DSB	348,947	389,710	649,874	709,958	586,014	529,664	499,215	499,215
13	Central DSB Staff	1,090,216	1,303,819	1,478,772	1,338,104	2,453,050	2,827,623	3,439,725	3,439,725
21	Operation of School Plants	1,791,082	1,861,678	1,851,832	1,783,050	2,052,058	2,023,280	2,245,569	2,245,569
23	Custodial Serv.	79,732,111	84,741,711	86,480,269	86,079,872	115,201,960	114,372,038	129,626,158	129,626,158
31	Bur. of Maint. Adm. + Eng.	3,928,435	4,282,004	4,255,651	3,940,804	4,617,740	4,805,339	6,024,271	6,024,271
33	Wages-Rep. Shop Mech.	11,988,781	12,399,039	12,068,339	11,579,901	11,780,715	11,743,419	11,837,120	11,837,120
41	Bureau of Construction	3,159,901	2,974,541	3,038,485	2,471,018	2,900,333	2,854,573	3,213,607	3,213,607
43	Bureau of Fac-Pl + Des.	3,774,644	3,571,554	3,578,418	2,992,943	3,636,181	3,738,194	4,436,099	4,436,099
	Subtotal	106,069,358	114,581,999	121,932,877	127,178,612	146,606,430	149,512,951	165,128,282	167,888,282
	Less Fin. Pl. Savings	-146,500[2]	-1,000,000	-82,153	-4,383,000	-1,505,000		-240,000	-240,000
	Total	$105,922,858	$113,581,999	$121,850,724	$122,795,612	$145,101,430	$149,512,951	$ 164,888,282	$ 167,648,282

(1) Data from Mayor's Supporting Schedules, Budget as Modified for following FY (e.g. FY 1982 data found in FY 1983 Supporting Schedules.

(2) Estimated Fin. Pl. Savings.

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TABLE 38

DIVISION OF SCHOOL BUILDINGS
OTPS BUDGET

CODE	DESCRIPTION TOTALS	FY 1978	(1), (2) FY 1979	(1), (2) FY 1980	(1), (2) FY 1981	(1) FY 1982	FY 1983	FY 1984 Projected	FY 1985 Bd. Proposal
0600	Lump Sum Allowances	$ 0	$ 0	$ 0	$ 3,733,800	$ 803,813	$ 2,000,000	$ 1,089,954	$ 20,608,954
11	Ex. Dir. DSB	50,000	0	0	0	0	542,795	1	1
13	Central DSB Staff	627,377	783,942	753,942	983,942	1,183,942	1,223,942	1,533,942	1,533,942
21	Operation of School Plants	2,674,065	2,555,065	2,645,065	2,653,747	923,565	2,409,377	2,689,377	2,689,377
23	Custodial Serv.	2,427,041	2,427,041	2,277,041	2,027,041	506,500	442,505	442,505	442,505
31	Bur. of Maint. Adm. + Eng.	10,651,522	10,609,222	19,426,122	21,447,168	16,285,632	14,719,404	14,459,404	14,459,404
33	Wages-Rep. Shop Mech.	2,053,549	2,053,549	2,053,549	2,353,549	2,552,649	3,552,649	0	0
41	Bureau of Construction	0	0	0	0	0	0	0	0
43	Bureau of Fac-Pl + Des.	0	0	0	0	0	0	0	0
	Subtotal	18,483,554	18,428,819	27,155,719	33,199,247	22,256,101	24,890,672	24,817,832	44,334,832
	Less Fin. Pl. Savings	-0	-340,025	-2,800,000	-6,413,250	-1,347,600	-1,000,000	-1,000,000	-1,000,000
	Total	$ 18,483,554	$18,088,794	$24,355,719	$ 26,785,997	$ 20,909,101	$23,890,672	$ 23,817,832	$ 43,334,832

(1) Data from Mayor's Supporting Schedules, Budget as Modified for following FY (e.g. FY 1982 data found in FY 1983 Supporting Schedules.

(2) FY's 78-81 used different OTPS classification. We have reconstructed these and believe budgets are closely comparable.

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TABLE 39

DIVISION OF SCHOOL BUILDINGS
EXPENSE BUDGET

CODE	DESCRIPTION TOTALS	FY 1978	(1), (2) FY 1979	(1), (2) FY 1980	(1), (2) FY 1981	(1) FY 1982	FY 1983	FY 1984 Projected	FY 1985 Bd. Proposal
0600	Lump Sum Allowances	$ 355,241	$ 3,057,943	$ 7,731,237	$ 20,016,762	$ 4,182,792	$ 8,612,822	$ 4,896,472	$ 27,175,172
11	Ex. Dir. DSB	398,947	389,710	649,874	709,958	586,014	1,072,459	499,216	499,216
13	Central DSB Staff	1,717,593	2,087,761	2,232,714	2,322,046	3,636,992	4,051,565	4,973,667	4,973,667
21	Operation of School Plants	4,465,147	4,416,743	4,496,897	4,436,797	2,975,623	4,432,657	4,934,946	4,934,946
23	Custodial Serv.	82,159,152	87,168,752	88,757,310	88,106,913	115,708,360	114,814,543	130,068,663	130,068,663
31	Bur. of Maint.-Adm. + Eng.	14,579,957	14,891,226	23,681,773	25,387,972	20,903,372	19,524,743	20,483,675	20,483,675
33	Wages-Rep. Shop Mech.	13,942,330	14,452,588	14,921,888	13,933,450	14,332,864	15,302,067	16,439,769	16,439,769
41	Bureau of Construction	3,159,901	2,974,541	3,038,485	2,471,018	2,900,333	2,854,573	3,213,607	3,213,607
43	Bureau of Fac-Pl + Des.	3,774,644	3,571,554	3,578,418	2,992,943	3,636,181	3,738,194	4,436,099	4,436,099
	Subtotal	124,552,912	133,010,818	149,088,596	160,377,859	168,862,531	174,403,623	189,946,114	212,225,114
	Less Fin. Pl. Savings	-146,500[3]	-1,340,025	-2,882,153	-10,796,250	-2,852,000	-1,000,000	-1,240,000	-1,240,000
	Total	$124,406,412	$131,670,793	$146,206,443	$149,581,609	$166,010,531	$173,403,623	$ 188,706,114	$ 210,985,114

(1) Data from Mayor's Supporting Schedules, Budget as Modified for following FY (e.g. FY 1982 data found in FY 1983 Supporting Schedules).

(2) FY's 78-81 used different OTPS classification. We have reconstructed them and believe budgets are closely comparable.

(3) Estimated Fin. Pl. Savings.

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TABLE 40

DSB EXPENSE BUDGET
FY '83

CODE	DESCRIPTION	AMOUNT
0600	Lump Sum Allowances	$ 8,612,822
0611	Executive Director	1,072,459
0613	Central DSB Staff	4,051,565
0621	Operation of School Plants	4,432,657
0623	Custodial Services	114,814,543
0631	Bureau of Maintenance - A & E	19,524,743
0633	Wages - Repair Shop Mechanics	15,302,067
0641	Bureau of Construction	2,854,573
0643	Bureau of Facilities Planning	3,738,194
	& Design	$174,403,623
	Less Financial Plan Savings	1,000,000
		$173,403,623

TABLE 41

DISTRIBUTION OF DISCRETIONARY FUNDS(1)
TO SCHOOL DISTRICTS

School District	Age Score	No. PS + IS/JHS Schools	Total Weighting	Distribution of Discretionary Funds
1	5.28	18	95.04	$ 27,000
2	6.18	28	173.04	49,200
3	4.48	21	94.08	26,700
4	5.05	20	101.00	28,700
5	4.00	17	68.00	19,300
6	5.73	15	85.95	24,400
7	4.43	23	101.89	29,000
8	4.90	29	142.10	40,400
9	5.76	33	190.08	54,000
10	6.03	29	174.87	49,700
11	5.10	30	153.00	43,500
12	4.83	23	111.09	31,600
13	4.57	23	105.11	29,900
14	5.74	27	154.98	44,000
15	6.58	26	171.08	48,600
16	3.75	16	60.00	17,000
17	5.14	22	113.08	32,100
18	5.50	18	99.00	28,100
19	5.42	26	140.92	40,000
20	7.11	28	199.08	56,600
21	6.07	28	169.96	48,300
22	6.04	28	169.12	48,100
23	5.95	19	113.05	32,100
32	5.56	18	100.08	28,400
24	6.96	25	174.00	49,400
25	4.71	28	131.88	37,500
26	4.72	25	118.00	33,500
27	5.23	35	183.05	52,000
28	5.39	28	150.92	42,900
29	5.82	28	162.96	46,300
30	5.84	25	146.00	41,500
31	4.92	50	246.00	69,900
Total	5.44	809	4,398.40	$1,249,700

(1) The discretionary fund column entries are found through the following formula:

D.F. = a x (School District Weighting)

The constant, a, is found by capping the amount of discretionary funding at $1,250,000.

$1.25 million = a x (Sum of school district weights)

From this, a = 284.19

(2) All figures rounded to nearest $100.

TABLE 42

DISTRIBUTION OF DISCRETIONARY FUNDS(1)
TO HIGH SCHOOLS

Borough	Age Score	No. HS Schools	Total Weighting	Distribution of Discretionary (2)
MANHATTAN	5.73	22	126.06	$ 107,600
BRONX	5.26	19	99.94	85,300
BROOKLYN	5.94	34	201.96	172,300
QUEENS	5.18	22	113.96	97,200
STATEN ISLAND	5.50	8	44.00	37,500
Total	5.58	105	585.92	$ 499,900

(1) The discretionary fund column entries are found through the following formula:

D.F. = b x (Borough Weighting)

The constant, b, is found by capping the amount of discretionary funding at $500,000

$0.5M = b x (Sum of Borough weights)

From this, b = 853.36

(2) All figures rounded to the nearest $100.

TABLE 43

PROCESSING TIME DELAYS(1)
EXPENSE CONTRACTS

FY	Number of Contracts in Ranges of		Processing Time in weeks from Award to Notice to Begin Work in Ranges of	
	$5,000-9,999	10,000-14,999	$5,000-9,999	10,000-14,999 (2)
1981	117	53	966.42	437.78
1982	236	97	1,949.36	801.22
1983	175	60	1,445.50	495.60
1984	177	69	1,462.02	569.94
Totals	705	279	5,823.30	2,304.54

(1) The time delay between Award Date and Notice to Begin Work is 8.26 weeks, based on data from the Division of School Buildings.

(2) The totals in the two categories represent 111.99 and 44.32 years of processing time, time that could have been spent on actual maintenance work in the past four fiscal years.

TABLE 44

RETIREMENT REPORT(1)

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Mechanics Title	Total Staff	No. Eligible to Retire by end of 1985	No. Eligible to Retire between 1986 - 1989	Remaining at end of 1989 No.	Remaining at end of 1989 %
Auto Mechanic	2	1	0	1	50.0%
Boilermaker	5	0	0	5	100.0
Bricklayer	1	0	0	1	100.0
Carpenter	110	22	66	22	20.0
Clock Repairer	2	0	0	2	100.0
Doorcheck Repairer	1	0	0	1	100.0
Doorstop Repairer	10	0	3	7	70.0
Electrician	36	6	8	22	61.1
Elevator Mechanic	5	0	0	5	100.0
Exterminators	18	1	2	15	83.3
Furniture Maintainer	4	1	1	2	50.0
Furn. Maint. Helper	11	0	7	4	36.4
Furn. Maint. Woodwork	9	1	1	7	77.8
Glazier	9	0	3	6	66.7
Housepainter	9	2	7	0	0
Laborer	25	6	5	14	56.0
Locksmith	7	1	1	5	71.4
Machine Shop Assistant	1	1	0	0	100.0
Machinist	25	5	8	12	48.0
Machinist Helper	8	1	3	4	50.0
Maintenance Worker	3	1	0	2	66.7
Mason Helper	2	0	0	2	100.0
Plasterer	4	0	1	3	75.0
Plumber	35	3	8	24	68.6
Radio Repair Mech.	6	0	3	3	50.0
Roofer	5	0	3	2	40.0
Sheetmetal Worker	3	0	1	2	66.7
Sign Painter	1	0	0	1	100.0
Sr. Foreman Exterminator	1	0	1	0	0
Steamfitter	14	5	2	7	50.0
Steamfitter's Helper	5	2	2	1	20.0
Supervising Carpenter	8	4	3	1	12.5
Supervising Clock Repairer	1	0	0	1	0
Supervising Doorstep Maint.	3	0	3	0	0
Supervising Electrician	4	3	0	1	0
Supervising Elevator Mech.	1	0	0	1	100.0
Supervising Exterminator	1	0	1	0	0
Supervising Glazier	1	1	0	0	0
Supervising Machinist	4	3	1	0	0
Supervisor of Mechanics	4	3	1	0	0
Supervising Painter	2	1	1	0	0
Supervising Plumber	3	1	1	1	33.3
Supervising Radio Rep Mech.	1	0	0	1	100.0
Supervising Roofer	1	0	1	0	0
Supervising Steamfitter	4	0	2	2	50.0
Supervising Thermostat Rep.	1	0	1	0	0
Thermostat Repairer	9	0	0	9	100.0
Welder	1	0	0	1	100.0
Window Shade Repairer	6	0	0	6	100.0
Total	432(3)	75	151	206	47.7%

(1) Information from internal study by DSR's personnel office.

TABLE 45

CORRELATION BETWEEN AMOUNT/SCHOOL 1983 AND
PERCENT MINORITY STUDENT POPULATION
BY DISTRICT 1982

DISTRICT/BOROUGH	% MINORITY STUDENTS(2)	AMOUNT SPENT/SCHOOL(1)
MANHATTAN		
1	96.4%	$ 10,872.33
2	68.6	6,444.32
3	89.0	8,340.38
4	94.0	6,852.05
5	98.8	9,036.41
6	95.8	2,391.40
BRONX		
7	99.6	3,861.22
8	86.1	4,573.10
9	99.6	9,135.12
10	84.7	10,805.00
11	77.8	2,508.37
12	99.1	5,571.22
BROOKLYN		
13	97.5	9,837.65
14	91.7	4,576.63
15	79.6	8,561.38
16	99.9	7,377.31
17	99.3	7,604.64
18	73.3	7,769.06
19	93.5	3,876.92
20	41.3	4,432.71
21	42.1	9,368.18
22	47.9	2,360.18
23	99.8	5,145.97
32	96.3	2,977.56
QUEENS		
24	58.5	6,756.64
25	44.9	4,554.46
26	33.6	5,120.68
27	58.7	4,632.66
28	75.0	4,090.64
29	86.4	7,303.25
30	71.2	7,023.88
STATEN ISLAND		
31	20.1	7,449.12

Correlation coefficient = + 0.134

(1) The amount/school comes from Table 3, using the contracts specifically allocated to schools in districts.

(2) From the 1981-82 School Profiles.

TABLE 46

AMOUNT SPENT ON SCHOOLS
FY '83

CATEGORY	AMOUNT	% TOTAL	AMOUNT/SCHOOL(4)
Central DSE Overhead(1)	$ 12,135,591	7.40%	$ 13,277.45
Administration of Custodians	4,432,657	2.70	4,849.73
Custodians	114,814,543	70.01	125,617.66
Maintenance Admin. & Eng.(2)	4,805,339	2.93	5,257.48
Shop Mechanics	15,302,067	9.34	16,741.87
Expense Maint. Contracts(3)	12,504,517	7.62	13,681.09
Total	$163,994,714	100.00%	$179,425.29

(1) This includes Budget Codes 0600, 0611 and 0613 (Lump Sum Allowances, Executive Director and Central DSB Staff respectively.) These Three codes total to $13,736,846. This amount is allocated to Maintenance (codes 0613 and 0633) and custodial services (codes 0621 and 0623) in proportion to the latter two's percent of the total budget appropriation. Maintenance codes 0631 and 0633 = 19.69% of DBS's budget; custodial codes 0621 and 0623 = 68.37% of DSB's budget. We have combined the two allocations ($2,743,123 and $9,392,468) into one line in this table.

(2) We did not use the OTPS figure for this code since we analyzed the actual contracts for FY '83 in this report.

(3) Found in Table 8.

(4) Special schools and administrative offices were not included. Since maintenance work was directed at these structures, there would be only minor discrepancies in these figures if they were included. The proportions would, however, remain the same.

TABLE 47

CONSTRUCTION COST INDICES
1970-83 (1)

CALENDAR YEAR	PRICE DEFLATOR	VALUE OF $5,000 IN CONSTANT 1970 DOLLARS(2)	VALUE OF $ 10,000 IN CURRENT DOLLARS(3)
1970	56.8	$ 5,000.00	$ 3,641.03
71	60.5	4,694.21	3,878.21
72	64.1	4,430.58	4,108.97
73	69.6	4,080.46	4,461.54
74	81.8	3,471.88	5,243.59
75	89.3	3,180.29	5,724.36
76	92.4	3,073.59	5,923.08
77	100.0	2,840.00	6,410.26
78	113.0	2,513.27	7,243.59
79	128.8	2,204.97	8,256.41
80	143.2	1,983.24	9,179.49
81	151.9	1,869.65	9,737.18
82	154.1	1,842.96	9,878.21
83	156.0	1,820.51	10,000.00

(1) Data from U.S. Department of Commerce, Construction Review, 1970-1982; Composite Cost Index, U.S. Industrial Outlook, 1984 for 1983 figure (estimated).

(2) This column tells us what $5,000 in any year is worth in 1970 dollars, e.g. $5,000 in 1983 is worth $1,820.51 in 1970 dollars.

(3) This column tells us what value $10,000 in 1983 has in any year's dollars, e.g. $10,000 today was equivalent to $3,641.03 in 1970.

TABLE 48

CAPITAL BUDGET REQUEST OF THE
BOARD OF EDUCATION
FY 1985-88 (1)

FY	LUMP SUM LINES	PROJECT LINES	TOTAL
1985	$ 178.767 Million	$ 75.276 Million	$ 254.043 Billion
1986	138.844 "	148.509 "	287.353 "
1987	129.913 "	117.973 "	247.886 "
1988	136.108 "	131.702 "	267.810 "
Total	$ 583.632 Million	$ 473.460 Million	$1,057.102 Billion

(1) From "Capital Budget Request for Fiscal Year 1984-85 and Capital Improvement Program", NYC Board of Education, December 1983.

TABLE 49

LUMP SUM PROJECTS
FY 1985-88(1)

PROJECTS	AMOUNT FY '85-'88
Modernization and Rehabilitation	$ 381.365 Million
Mandated/Health Related	56.389 "
Playgrounds and Athletic Fields	55.078 "
Vocational/Educational Improvements	33.388 "
Administrative Improvements	24.174 "
Handicapped Installations	18.465 "
Security Installations	9.943 "
Kitchen Upgradings	4.830 "
Total	$ 583.632 Million

(1) From Capital Budget Request, op. cit.

TABLE 50

MODERNIZATION INCLUDED IN
PROJECT LINES
FY 1985-88(1)

FY	TOTAL PROJECT LINES REQUEST	AMOUNT MODERNIZATIONS
1985	$ 75.276 Million	$ 44.360 Million
1986	148.509 "	67.033 "
1987	117.973 "	95.128 "
1988	131.702 "	69.632 "
Total	$473.460 Million	$276.153 Million

(1) From Capital Budget Request, op. cit.

TABLE 51

TOTAL AMOUNT MODERNIZATION CAPITAL FUNDS
REQUESTED BY BOARD OF EDUCATION
FY 1985-88(1)

SOURCE	AMOUNT FY 1985-88 FOR MODERNIZATION
Lump Sum Lines	$ 381.365 Million
Project Lines	276.153 "
Total	$ 657.518 Million(2)

(1) From Capital Budget Request, op. cit.

(2) This is 62.20% of total Capital Request for FY '85-88.

TABLE 52

BOROUGH DISTRIBUTION OF LUMP SUM
MODERNIZATION FUNDS
FY 1985-88(1)

BOROUGH	FY '85	FY '86	FY '87	FY '88	TOTAL
MANHATTAN	$16.546M	$17.379M	$18.244M	$ 19.152M	$ 71.321M
BRONX	16.655	17.482	18.356	19.274	71.767
BROOKLYN	29.649	31.131	32.689	34.323	127.792
QUEENS	18.090	18.994	19.944	20.941	77.969
STATEN ISLAND	7.544	7.921	8.317	8.734	32.516
Total	$88.484M	$92.907M	$97.550M	$102.424M	$381.365M

(1) From Capital Budget Request, op. cit.

TABLE 53

BOROUGH DISTRIBUTION OF LINE PROJECTS
MODERNIZATION FUNDS
FY 1985-88(1)

BOROUGH	FY '85	FY '86	FY '87	FY '88	TOTAL
MANHATTAN	$ 1.035M	$24.018M	$ 9.535M	$13.298M	$ 47.886M
BRONX	4.280	13.964	30.237	29.585	78.066
BROOKLYN	29.823	17.545	56.915	21.342	125.625
QUEENS	5.839	22.288	1.865	5.217	35.209
STATEN ISLAND	0.350	0	5.550	0.600	6.500
Subtotal	41.327	77.815	104.102	70.042	293.286
Less other funds[2]	-0	-10.782	-8.974	-0.410	-20.166
Total	$41.327M	$67.033M	$ 95.128M	$69.632M	$273.120M

(1) From Capital Budget Request, op. cit.

(2) Discrepancy of $3.033M for FY '85. For FY '86-'88 modernization were combined with several school additions. This line represents the amount for additions.

TABLE 54

EXPENSE BUDGET REQUEST - OTPS
MAINTENANCE PROGRAM
FY '85 (1)

CATEGORY	AMOUNT REQUESTED
Painting 5 High Schools	$ 1,000,000
Painting 32 District Schools	2,400,000
Service Contracts	1,840,000
District Repairs	7,900,000
High School Repairs	2,800,000
Administrative Repairs	200,000
Contract Extras	100,000
Mechanics and Custodial Supplies	3,000,000
OTPS Inflation Adjustment	230,000
Total	$19,470,000

(1) From the "Budget Estimate for Fiscal Year 1984-85" of the Board of Education, December 1983.

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TABLE 55

EXPENSE MAINTENANCE CONTRACTS(1), (2)
BACKLOG - PS + IS/JHS

CSD/BOROUGH	NO. CONTRACTS	AMOUNT	NO. PS + IS/JHS SCHOOLS	AMOUNT/ SCHOOL
MANHATTAN				
1	33	$ 330,406	18	$ 18,355.89
2	43	382,712	28	13,668.29
3	24	301,039	21	14,335.19
4	27	223,336	20	11,166.80
5	34	384,310	17	22,606.47
6	29	372,180	15	24,812.00
Subtotal	190	1,993,983	119	16,756.16
BRONX				
7	48	402,745	23	17,510.65
8	43	368,810	29	12,717.59
9	56	919,018	33	27,849.03
10	103	1,035,227	29	35,697.48
11	58	385,759	30	12,858.63
12	49	492,931	23	21,431.78
Subtotal	357	3,604,490	167	21,583.77
BROOKLYN				
13	29	255,789	23	11,121.26
14	61	575,982	27	21,332.67
15	58	610,595	26	23,484.42
16	27	520,510	16	32,531.86
17	27	794,145	22	36,097.50
18	59	529,157	18	29,397.61
19	29	232,237	26	8,932.19
20	53	609,797	28	21,778.46
21	85	759,101	28	27,110.75
22	44	398,578	28	14,234.93
23	21	238,370	19	12,545.79
32	49	547,990	18	30,443.89
Subtotal	542	6,072,251	279	21,764.34
QUEENS				
24	32	233,416	25	9,336.64
25	51	761,552	28	27,198.29
26	31	285,377	25	11,415.08
27	55	405,628	35	11,589.37
28	34	268,239	28	9,579.96
29	59	556,779	28	19,884.96
30	58	800,819	25	32,032.76
Subtotal	320	3,311,810	194	17,071.19
STATEN ISLAND				
31	81	504,586	50	10,091.72
CITYWIDE TOTALS	1,490	$15,487,120	809	$ 19,143.54

(1) Contracts specific to districts and schools.

(2) The effective dates of this backlog are: 2/6/84 for contracts under

TABLE 56

EXPENSE MAINTENANCE CONTRACTS
BACKLOG HS

BOROUGH	NO. CONTRACTS	AMOUNT	NO. HS	AMOUNT/SCHOOL
MANHATTAN	72	$ 843,892	22	$ 38,358.73
BRONX	127	1,168,964	19	61,524.42
BROOKLYN	149	2,195,742	34	64,580.65
QUEENS	86	2,222,618	22	101,028.09
STATEN ISLAND	28	255,466	8	31,933.25
Total	462	$6,686,682	105	$ 63,682.69

TABLE 57

EXPENSE MAINTENANCE CONTRACTS
BACKLOG
ALL SCHOOLS

BOROUGH	NO. CONTRACTS	AMOUNT	NO. HS	AMOUNT/SCHOOL
MANHATTAN	652	$ 2,837,875	141	$20,126.77
BRONX	484	4,773,454	186	25,663.73
BROOKLYN	691	8,267,993	313	26,415.31
QUEENS	406	5,534,428	216	25,622.35
STATEN ISLAND	109	760,052	58	13,104.34
Total	2,342	$22,173,802	914	$24,260.18

TABLE 58

EXPENSE MAINTENANCE CONTRACTS
BACKLOG
ALL CATEGORIES

BOROUGH	PS + IS/JHS	HS	Bor. VARIOUS	MISC.	TOTAL BOROUGH
MANHATTAN	$ 1,993,983	$ 843,892	$ 1,018,900	$ 114,000	$ 3,970,875
BRONX	3,604,490	1,168,694	754,940	9,499	5,537,893
BROOKLYN	6,072,251	2,195,742	573,630	238,111	9,079,734
QUEENS	3,311,810	2,222,618	454,910	87,511	6,076,849
STATEN ISLAND	504,586	255,466	154,950	10,225	925,227
Subtotal	15,487,120	6,686,682	2,957,330	459,446	25,590,578
CITYWIDE VARIOUS	0	0	0	750,000	750,000
Total	$15,487,120	$6,686,682	$ 2,957,330	$1,209,446	$26,340,578

TABLE 59

CORRELATION BETWEEN CSD AGE
SCORES AND BACKLOG AMOUNT/SCHOOL(1)

DISTRICT	AGE SCORE (PS + IS/JHS)	BACKLOG AMOUNT/SCHOOL
1	5.28	$ 18,355.89
2	6.18	13,668.29
3	4.48	14,335.19
4	5.05	11,166.80
5	4.00	22,606.47
6	5.73	24,812.00
7	4.43	17,510.65
8	4.90	12,717.59
9	5.76	27,849.03
10	6.03	35,697.48
11	5.10	12,858.63
12	4.83	2[illegible],431.78
13	4.57	11,121.26
14	5.74	21,332.67
15	6.58	23,484.42
16	3.75	32,531.86
17	5.14	36,097.50
18	5.50	29,397.61
19	5.42	8,932.19
20	7.11	21,778.46
21	6.07	27,110.75
22	6.04	14,234.93
23	5.95	12,545.79
32	5.56	30,443.89
24	6.96	9,336.64
25	4.71	27,198.29
26	4.72	11,415.08
27	5.23	11,589.37
28	5.39	[illegible],579.96
29	5.82	19,884.96
30	5.84	32,032.76
31	4.92	10,091.72
Citywide	5.44	$ 19,143.54

Correlation Coefficient = + 0.033

(1) Age Scores are found in Table 21.

TABLE 60

PO 18 BACKLOG
FY '83-84(1)

MONTH	NO. PO 18's(2) RECEIVED	NO. PO 18's(2) PROCESSED	NO. PO 18's in(2) BACKLOG
FY 1983			
July	1,479	1,343	19,306
August	1,543	1,535	18,935
September	2,221	2,831	18,983
October	3,976	3,886	19,083
November	3,140	3,094	19,133
December	2,957	2,654	19,447
January	2,823	2,819	19,451
February	3,085	2,683	19,709
March	3,277	3,019	20,111
April	2,104	1,902	20,169
May	2,366	2,341	20,194
June	1,960	2,699	19,451
FY 1984			
July	1,086	1,162	2,903(3)
August	1,101	1,082	2,922
September	1,223	1,149	3,056
October	1,780	1,716	3,120
November	2,577	2,061	3,502
December	1,550	1,181	4,083
January	2,435	2,106	4,000
February	2,604	2,226	4,378

(1) From Board of Education, Division of School Buildings.

(2) According to staff at DSB these three columns are <u>not</u> related to one another. Column 1, PO 18's received, is simply the number of PO 18's received at the Area shops. Column 2, PO 18's processed, are those PO 18's referred to a specific trade or to specification writing and these PO 18's can come from the backlog or from those received. Column 3, the backlog, is a specious number since there are many duplicate PO 18's, i.e. custodians will either repeat the request for repair every few months or will break up one job into several separate requests. Hence, the backlog is not simply found from the other two columns.

(3) In July DSB simply discarded thousands of obsolete PO 18's. Also, there have been problems in the Brooklyn Area Office, so its backlog is not included.

TABLE 61

GROWTH IN BACKLOG(1)

FISCAL YEAR	AMOUNT
Before FY 1983	$ 15,076,597
1983	5,145,274
1984	6,118,707
Total	$ 26,340,578

(1) These figures represent the dollar value of the backlog as of March, 1984. Of the $26.34 million in backlog contracts, $15.08 million is from specifications written before FY 1983.

TABLE 62

EXPENSE FUNDING PROPOSAL

	FY '85	FY '86	FY '87	FY '88	FY '89
Savings from DSB efficiencies	$ 0.5M	$ 1.0M	$ 1.5M	$ 2.0M	$ 2.5M
Savings from improvements in custodial contract	1.0	3.0	5.0	7.0	9.0
Additional Expense Budget Funding	20.0	15.0	15.0	15.0	15.0
Totals	$21.5M	$19.0M	$21.5M	$24.0M	$26.5M

NEW YORK CITY BOARD OF EDUCATION
SUMMARY OF RECOMMENDATIONS

NO.	DESCRIPTION	BENEFITS	IMPLEMENTATION	POTENTIAL SAVINGS $
1	RPT Concept Manhattan-Bronx	Improved scheduling, control and productivity of available resources	Completed by May 15, 1982	$ 730,000
2	Revised work request form (PO 18)	Saves time in form preparation	Requires printing and distribution of new form	N.Q.
3	Standard packaging for materials shipped to school	Improved control and support to materials flow to schools	Requires package design and purchase of materials	N.Q.
4	Improved materials handling to custodians at schools	Reduced number of jobs assigned to trades personnel for repairs within the scope of the custodian's job	Requires improved materials control systems and communications with custodians	275,000
5	Make use of existing public address system	Improved Communications	Requires parts	N.Q.
6	Centralize catalogs and technical data	Improve filing and retrieval of key technical data	Requires space and procedures	N.Q.
7	Combined Open Market Order and Book Spec. Payment form.	Elimination of duplications in forms and time required to prepare multiple copy forms.	Requires new form, printing and distribution.	N.Q.
8	Standardized specification format with preprinted cover sheet.	Reduce typing time and specifications review and development time.	New form and procedures required.	N.Q.
9	Combined Time Sheet and Carfare form.	Elimination of one form reduces preparation time for time sheet and carefare documentation.	Requires printing and distribution of procedures and instructions.	N.Q.
10	Identify automated systems to support Area Office operations	Improved control and reporting	1-2 week survey to identify and document systems	N.Q.
11	Improve reporting package	Better use of information produced by RPT Concept	2 week effort to develop and implement new package	N.Q.

From: A Resource Management System in the Division of School Buildings Pilot Program, Final Report, June 1982; Arthur Young & Company.

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NEW YORK CITY BOARD OF EDUCATION
SUMMARY OF RECOMMENDATIONS

NO.	DESCRIPTION	BENEFITS	IMPLEMENTATION	POTENTIAL SAVINGS $
12	Revise and expand priority system	Improved assignments based on priorities	3-4 week study to develop and implement revised system	N.Q.
13	Improved coordination between office of Engineering Support Services and Technical Specailists	Better scheduling and control and technical and engineering specialists	4-6 week RMS project to identify and implement improvements	N.Q.
14	RMS Project Central shops	Improved scheduling, control and productivity of available resources	See action plans	N.Q
15	RPT Concept 2 area offices	Improved scheduling, control and productivity of available resources	6-8 weeks required for full implementation in each office	1,760,000
Total quantified potential savings				$2,765,000

N.Q. = not quantifiable savings; improvement in service levels or cost containment expected.

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POSITION PAPER ON THE 1983-84 SCHOOL BUDGET

1. Maintenance and Repairs

On April 4, 1982 the New York Times had a front page story entitled "New York Paying a Price for Delaying Repairs." While the report indicated that the "Board of Education has now embarked on a catch-up maintenance program at 17 schools" it has been evident that much more has to be done. The conditions existing in many schools today present obstacles to effective instruction and even represent dangers to both students and staff. The article specifically alludes to the fact that "For decades, the New York City school system - sometimes seeking to save money, sometimes spending available money for other things - postponed regular roof maintenance on some schools, only to discover that resulting leaks had not only damaged walls but also seriously corroded steel underpinnings." The article further states that "In the case of the city schools, Mr. Smith of the Office of School Buildings noted that he faced a problem that had been growing for decades. Even though the school system has increased its regular maintenance budget this year by fifty percent, he said he still has only 17 cents to spend for every square foot of space. One need only look at the condition of the schools, he said, to see that his calculation of $686 million in deferred maintenance needs was not a wish list." ..."That 17% is just not enough to prevent continuing to have problems in the future," he said, noting that at the current rate every school in the city would be repainted every 102 years. "So since you don't have preventative maintenance, you have reactive maintenance."

A. The Most Important Maintenance and Repair Needs

Last year, the High School Principals Association conducted a survey of the maintenance and repair conditions existing in New York City high schools. The survey sought to identify the schools' most serious repair needs and determine the promptness with which repairs have been made. The results of the survey were as follows:

Leading Maintenance and Repair Needs of N.Y.C. High Schools

Needs	Rank	%age of Schools with these problems
Painting & Plastering	1	62.3
Electrical	2	57.4
Public Address System	3	49.2
Doors	4	47.5
Roofing	5	44.2
Plumbing	6	42.6
Inter.Comm. System	7	40.9
Windowshades	8	39.3
Windows	9	37.7
Heating & Ventilation	10	31.1
Clocks	11	26.2
Cement Work	12	24.5
Furniture	12	24.5
Carpentry	13	16.4
Telephones	14	14.8
Stage Rigging	14	14.8

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Processing P.O.'s

Equally significant was the information the survey revealed regarding the delays and failures to have requests for necessary repairs met during the current and past years. - In the processing of P.O. 18's (Plant operation form requesting repairs).

1981-1982 School Year Until Mid December	Page of P.O. 18's Serviced 25.9%
School Year 1980-81	32.1%

These figures are even more revealing when compared with the declining statistics of previous years. A similar survey taken two years ago had reported that in school year 1977-78, 53.2% of P.O. 18's were serviced and in 1978-79, 41.9% of P.O. 18's were serviced.

C. Some Individual Cases

School A - New exit doors and door bucks at all locations, extensive exterior concrete work is essential at nearly all exits. There are about one thousand shades completely missing from windows; despite recent roof repairs we still have numerous leaks; the lavatories need ceramic tile work; at the present time there are thirty-five clocks missing; intercom telephones are needed at numerous locations; and extensive carpentry work is needed, especially on classroom doors.

School B - We have no window shades; plumbing in lavatories and showers have faulty controls; missing tiles on landings and staircases; heating and ventilation is defective; thermostats and convectors are not working; plastering and painting repairs needed in auditorium, main lobby and basement; doors needed to be rehung; faulty sockets/ switches in many classrooms; telephone intercoms are not working; and clocks are inoperable.

School C - Roof bulkheads at all exits to the roof are leaking; roof needs to be repaired; need to rehang doors; cement work on sidewalk and school yard are badly needed; missing clocks; missing faucets; leak on steam line to heating coil in oil tanks; need for installing missing locksets and night latches; defective seats in auditorium; minor repairs on all four oil burners and controls; and need for repair on vacuum pump seal.

School D - Repair of burned out closet; window shades needed in almost every classroom; plastering and painting; replacement of ceiling tiles and wall tiles on all floors; and painting of entire building.

School E - Painting and plastering essential; need to overhaul heating and ventilation systems; replacement of floor tiles; antiquated telephone system; need of roof repair; replacement of outside doors; cement work; and furniture repairs.

School F - Roof leak; plastering and painting; window repairs; pointing and siliconing brick work; fluorescent ballast; major and minor plumbing repairs; fence gate repairs; athletic field resodding and cinder track restoration; and anti-panic lock sets installed on auditorium and gymnasium doors.

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Examples of Repair Costs for School G (All figures are only estimated)

1) Roof Repairs and Painting -

1975 - entire cost	$80,000 - $100,000
1982 - entire cost	$300,000 - $350,000

In 1982 it is now necessary to repair plaster ceilings and walls due to water damage and paint most of the top floor rooms.

2) Window shades -

1981	$ 4,000

Money not released. The Board used to have its own shade shop but has laid off mechanics.

3) Hot Water Heaters -

1980	$ 2,500
1982	$ 3,400

School showers unusable for athletes.

4) Sanitary Repairs -

1981	$ 2,400
1982	$ 3,000

One toilet closed for one year.

5) Boiler Repairs -

1981	$ 2,500
1982	$ 4,000

Increase due to progressive deterioration

6) Auditorium stage curtains -

1981	$14,000
1982	$19,000 - $20,000

Stage is unusable for productions.

Normal shop maintenance is not being done. The Board is allowing repairs to collect and when sufficient repairs have accumulated, a specification will be written. From the time of writing of the Spec. to the start of work is normally six to twelve months, depending on the cost of the work. So the total lapse time from breakdown to repair is normally in the range of 18 to 24 months. In some cases, the time lapse is longer and in a few emergency situations the time lapse can be shorter.

In many cases today, it is the custodian engineer who is keeping the school operating by performing all types of emergency and major repairs.

D. Negative Factors Resulting from a Deferred Maintenance Program

1. Increased costs due to inflation, labor and material increases.
2. Increased costs due to a more rapid deterioration.
   Deterioration does not occur at a steady rate: rather, it increases at a multiple rate as maintenance is put off.
3. Building deterioration has a tendency to increase student vandalism.
4. Deferred maintenance also promotes a physical atmosphere that is not conducive to education.
5. Facilities may be limited in either use and at times present

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minor hazards to students and faculty.

Shop mechanics, who normally perform repairs in schools, have been reduced in force by approximately 25% since 1979. Remaining shop mechanics have been used to accomplish work such as securing closed buildings, rehabilitating classroom space to office space and modernizing administrative offices thereby reducing manpower for repairs in the field. Evidently, some of the remaining manpower is also being used to complete work usually done on specifications.

Money allocated for specification work was reduced by approximately 35% between 1979 and 19[illegible]. A major portion of this year's budget has been designated for painting of schools as opposed to the sorely needed repairs necessary to make the schools safe.

The picture of neglect as in the above seven mentioned schools can be duplicated in many other cases. Leaking roofs, faulty plastering and broken cement and tiles represent dangers to the people who live daily in our high schools. If steps are not taken to improve the processing of P.O. 18's, the percentage of schools with outstanding maintenance problems will continue to grow. A massive maintenance and repair program is needed if our schools are not to match the stage of deterioration that the city's subway system has reached.

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